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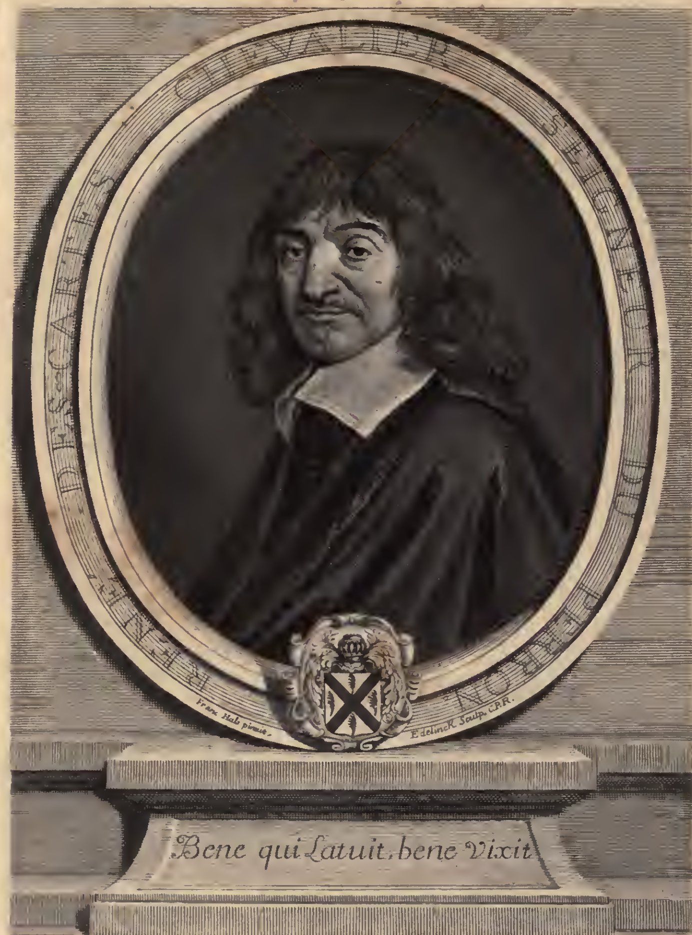
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DESCARTES
HIS LIFE AND TIMES

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Emery Walker Ph. Sc.

DESCARTES
HIS LIFE AND TIMES

BY ELIZABETH S. HALDANE

LONDON
JOHN MURRAY, ALBEMARLE STREET
1905

PREFATORY NOTE

THE works of Descartes have, up to the present time, been known to modern literature through the celebrated edition prepared by Victor Cousin, and published, 1824-1826, in eleven octavo volumes. This edition is entirely written in French, while Descartes' writings are largely in the Latin tongue; it has no index, biography, or notes, and though at the time it was published it was considered fairly complete, none knew better than the editor that much revision was required, that the correspondence was not correctly dated, and that it was an immature piece of work. Still, such as it was, we must feel for ever grateful to one who did his utmost to provide his country with an edition of the works of him who did so much to give her glory. But, as Cousin himself came to find, the edition was not complete. He himself added certain letters in his *Fragments philosophiques*, and other material has been discovered since. The purpose of the work, however, to draw men to the study of the great philosopher, was fully realised.

It is left for the present century to complete the work which Cousin so nobly began. The third centenary of Descartes' birth was celebrated at the Sorbonne on the 31st of March 1896, under the presidency of M. Liard, who had, when professor at Bordeaux, himself contemplated issuing a new edition of Descartes' works in conjunction with M. Tannery. It was in January of the same year that negotiations were concluded with the publisher for issuing a completely new edition of Descartes' works under the

direction of M. Charles Adam and M. Paul Tannery, and this admirable work is now being published—a worthy monument to one of France's most distinguished sons. No trouble has been spared to make this edition perfect and complete.

Any Life of Descartes is, of course, mainly dependent upon his very considerable correspondence, principally written and framed with a view to future publication. Of Descartes' *Letters*, as MM. Adam and Tannery tell us, the first important edition is that of Clerselier, in three volumes, published at Paris by Charles Angot in 1657-67. Clerselier had at his disposal Descartes' manuscripts, copies of many of his letters and notes, taken by him to Sweden and enumerated in a catalogue made just after his death. These had been given to Chanut, the French ambassador in Sweden, and Descartes' great friend, who contemplated publishing them. This task, however, he handed over to Clerselier, his brother-in-law, and likewise the author's friend. The packet was duly despatched to France, which, after many delays, it reached in 1653. It travelled by Rouen, and was entrusted to a vessel which made its way to Paris by river. Unluckily, near Paris, the boat was wrecked, and for three days the precious manuscripts remained submerged in water. Wonderful to relate, "by Divine permission," the papers were recovered some distance off, and were duly hung up in various rooms to dry; but since this was done by unintelligent servants, much confusion resulted, as can easily be imagined.* In endeavouring to rearrange the manuscripts, the greatest difficulty was experienced; and more especially was this so in reference to the *Letters*. The papers, all of which had not been used, were finally bequeathed by Clerselier, in 1684, to Legrand, who assisted Baillet in writing his Life of Descartes. Baillet and Legrand set about their work of writing the Life with the greatest vigour. Legrand, not content with handing over to Baillet Descartes' manuscripts and Clerselier's memoirs, made it his

* *Vie de M. Descartes*, par Adrien Baillet, 1691, vol. ii., p. 428.

business, Baillet tells us, to go to see everyone in Paris from whom he might receive the slightest help. He wrote to Brittany, Touraine, Languedoc, Holland, Sweden, and Germany, in order to interest his friends and relations in the project, and recovered certain communications from Regius of Utrecht, and the greater part of those from Descartes to the Abbé Picot, to Clerselier, to Tobie d'André; as also some from Princess Elisabeth of Bohemia, Chanut, etc. Baillet also acknowledges the help received from Descartes' nephews, M. de Kerleau and M. de Chavagne (both Descartes' brothers being dead), and also from his niece, Mlle. Catherine Descartes. These provided family papers regarding the philosopher's ancestry and private life, while the sons of Clerselier and Chanut supplied all that they could of what was useful in their fathers' manuscripts. M. le Vasseur, son of Seigneur d'Etioles, the relative, friend, and host of Descartes while in Paris, supplied what material he could, as did many others whose names Baillet gratefully quotes in his Preface.

The edition of Legrand would have been much more complete than that of Clerselier, as the volumes of letters published testify; it was well supplied with notes, and additions and corrections were added freely; but the work was a lengthy one, and in 1704, twenty years after it was undertaken, Legrand died, leaving it incomplete, and his papers were lost to sight.

The Life undertaken by Baillet was, fortunately, carried to a successful issue. It was published in Paris in 1691, in two large volumes. This work, though not of any philosophical or literary interest, is invaluable to us now, both for its own sake and because of the light it throws on other documents.

In 1824-26, the edition of Descartes' works best known to us appeared in Paris. The letters comprise five volumes of the eleven; and although Cousin endeavoured to print them in chronological order, this was not always strictly carried out.

The Abbé Emery published ten letters of Descartes on the Eucharist, in a volume of *Pensées de Descartes sur la religion et la morale.* These were republished by Bouillier in his *Histoire de la Philosophie Cartesienne.* Cousin published some letters in his *Fragments philosophiques,* and others appeared elsewhere. Count Foucher de Careil gives us an interesting account of how he was examining the works of Leibnitz at the library at Hanover, which he thought might throw some light on Descartes' missing manuscripts, seeing that Leibnitz had thought of editing his posthumous works, and how, though unsuccessful at the time, he discovered that Leibnitz was mentioned by Baillet as having had communication with Clerselier, and as having helped him in his work. He therefore returned to his search, this time to be rewarded by discovering amongst Leibnitz's papers the "Pensées" and other manuscripts which he publishes. He also printed twenty-six letters from the Princess Elisabeth to Descartes, from a manuscript found at a castle near Arnhem, belonging to the Baron de Pallandt. Infinite pains have been taken by the present editors to place all the letters of the philosopher in chronological order, and their work is now invaluable.

For a Life of Descartes, besides the Letters and the most interesting bit of autobiography in the "Method," the Life of Baillet is naturally the source from which all others have been derived, and its value is largely due to its simplicity and accuracy. Baillet tells us that he aimed at saying what he had to say simply, telling just what his subject thought, saw, and did without adornment, and this is exactly what he accomplished. He does not aspire to criticise, but tries to tell his tale with exactitude and fidelity, not indulging in over-much laudation nor concealing faults where present. Baillet has no false estimation of his own powers. He regrets deeply that Chanut, who knew Descartes so well, and who was, in his eyes, so well fitted for the work, did not see his way to undertake the writing of Descartes' life. Failing Chanut, Baillet

would have liked Clerselier to undertake the task. Clerselier knew Descartes; he had the material and leisure necessary, besides the ability, but he did not do more than collect and preserve his writings. The Queen of Sweden, seeing that these two refused, endeavoured to procure the services of Père Poisson of the Oratory, who had written on the "Method." Clerselier offered to assist him as far as material was concerned, but the plan fell through. Then Daniel Lipstorpius of Lübeck stepped in, not wishing to lose sight of certain particulars learnt in Holland, and in 1653 he published his impressions, slight as they were. A sort of abridgment of this book, or sketch of a Life, was published by another, Doctor Pierre Borel, in the same year, but it was full of errors. At Nüremberg, in 1674, there appeared a so-called *History of Cartesianism*, by Tepelius, which, despite its ambitious title, contained little that is useful or otherwise than superficial.

Amongst books which have been consulted besides those just mentioned, are the following:—

Histoire de Descartes avant 1637, published 1867, and *depuis* 1637, published 1870, by Joseph Millet; *Descartes et la Princesse Palatine*, A. Foucher de Careil, 1862; *Descartes et la Princesse Elisabeth et la Reine Christine*, A. Foucher de Careil, 1879. In addition to these may be mentioned the work of Louis Liard (1882), and Alfred Fouillée's interesting brochure on Descartes, published in 1893, as also the accounts given of Descartes in various Histories of Philosophy, prominent amongst which is Kuno Fischer's; Adamson's *Development of Modern Philosophy* should also be included. The only English life of Descartes of any importance is the excellent little book by Professor Mahaffy, published as one of Blackwood's Philosophical Classics in 1880. Norman Smith's *Studies in Cartesianism*, 1903, is an acute criticism of his philosophy; and there is, of course, besides, the well-known article on Cartesianism in the *Encyclopædia Britannica*, by the Master of Balliol.

It has been suggested that since Descartes' Letters have now been given to the public in their complete form, it would have been interesting to have had certain of these translated from the French and Latin, and printed in their entirety. This, however desirable in itself, has, unfortunately, proved to be impossible within the limits of a single volume, dealing with the life and teaching of the philosopher.

The last two chapters, treating of Descartes' Physiology and Geometry, are of the nature of an Appendix. For the account of the Cartesian Geometry, I am indebted to my friend Miss Margaret Forrest, who regrets that much of interest has had to be omitted, since it would have been meaningless without the use of diagrams. In reference to the chapter on Physiology, I have had the benefit of certain criticisms and suggestions from my brother Mr J. S. Haldane, F.R.S. I have also to state my great indebtedness to Miss Frances Simson, M.A., Warden of the Masson Hall in Edinburgh, and to Miss Alice Walker, who have kindly read through the whole of the proofs.

E. S. H.

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INTRODUCTION

Of all the nineteen centuries of the Christian era, the seventeenth is possibly the most interesting to a student of history. And of all European countries, it is the country of Descartes' birth in which the developments of this century are seen to most advantage. In France, where Mediævalism had for so long reigned supreme, a new order of things had come to pass; and how it came to pass, and what the new order meant, are questions of the deepest interest; for us, these are united to the further question which meets us in this essay, as to the part that was played in the transformation by the subject of our study.

The time when a faithful and authentic definition of the Truth was counted the thing most to be desired, was drawing to a close. In Germany, the century of Descartes' birth had been characterised by that extraordinary upheaval in its intellectual life, known as the Reformation; and this upheaval did not confine itself to the country with which it is principally associated, but in very various forms manifested itself all over the continent of Europe. The sixteenth century, at the close of which Descartes was born, was a century of dismemberment and unrest. Old landmarks were removed; the changes in the constitution of European states began, which finally left them somewhat in their present form. It seemed as though every state were passing through a time of test and trial, and no one could certainly foretell the results. What state would stand pre-eminent at the close? What would be the religion finally decided on and adopted? Would France

elect, as Germany had done, to accept the principles of a faith associated with the Reformation; and would these principles spread themselves there as they appeared to have done in Germany, when the century reached its close? One fact very soon appeared, that France would be the first of all the countries seriously affected to come forward from the fray, and to take her place in Europe as supreme amongst the Christian powers.

With the new century — the seventeenth, that in which Descartes' life was spent — came a period of reconstruction on monarchical and territorial principles. Catholicism attained a force it had hardly ever reached before. The Protestant Reformation in Germany found its weakness in its individualism, in its internal divisions and struggles for supremacy. Its work, undoubtedly, was a very necessary one, but it was a work mainly of a destructive kind, and liable to the reaction which soon, indeed, appeared in the movement which we now call by the name of Counter-Reformation. Man's right to interpret personally the reading of the Scriptures, his claim of personal relation to his God, were matters of the deepest possible importance. But this very individualism was fraught with danger. Where every man was enjoined to search for truth, every man found it in his own particular way, and yet believed he had found it for all mankind. False standards were swept away, but new ones were set up, which were more real, no doubt, but which, in the heat of controversy became as arbitrary as the rest, and were yet maintained with equal or even greater vehemence of speech. The Reformation of Catholicism was, however, something altogether different. The Church had won the battle, but the victor did not remain unchanged. The Catholicism of the seventeenth century was very different from that of the century preceding. A moral change had taken place; and the Church was in a far more healthy and active state than she had been before, and this was largely through the establishment of the Religious Orders, and, above all, by the educative forces

of the Society of Jesus. The clergy were reformed, zeal and harmony came hand in hand, and, in fact, the Counter-Reformation was the sign and symbol that the lesson of the Reformation had extended where it was least expected. We cannot wonder that, with two equally vigorous sections striving for mastery, the war broke out which for thirty years was to devastate Central Europe; and in this warfare Descartes was destined to play his part as a humble soldier.

But reconstruction in France was not effected mainly on religious lines. A writer on French Literature says, that the Middle Ages in their close resembled the Roman Empire in the period of its decadence. Old beliefs were really dead, though the forms were present as before. It was a time of almost morbid introspection. What followed was a craving for knowledge for its own sake, a development of the spirit of humanism which was to prove so great an intellectual force within the civilised world. A greater contrast could hardly be conceived than that between Calvin, with his violent plea for individual liberty, and Montaigne, with his sceptical interest in mankind as such. And yet, both taught the same lesson, the lesson that we should be *ourselves;* that we are not to be tied down by artificial trammels of former days, but that we must find interest, not only in the questions of the Schools, but in everything that is real and true. And, to a humanist of the time, this meant that the individual had reached a place which hitherto he never had attained, whether in regard to Art, to Nature, or to man himself. Man becomes the most important study possible, not from sheer arrogance of spirit, but because, through himself, he knows mankind. The spirit of inquiry, the keen interest which had arisen in every phenomenon of whatever kind, extended to that most important study, the study of himself. The time before Descartes' birth, indeed, seemed a time of progress everywhere. It was then men were smitten with the impelling love of travel, which led them to find and explore new worlds. Infinite

potentialities lay before their hands; they had but to grasp these potentialities and make them real. Life in all its manifestation was boundless in its interest, and the natural impulse to taste and see was being satisfied to the full. The world seemed suddenly to have grown in size and possibilities, with the discovery of new territory on the one hand, and the even more important discovery of the reign of Law on the other. For this last was to teach men what they had never properly learned, that they had within their own individual powers, without any supernatural aid, the means of discovering those laws by which the operations of nature were carried on; and this was the work in which Descartes was to play so very prominent a part. Men, for a time, were to become curiously detached from what concerned themselves and their surroundings; that is to say, they came to study themselves, not as did the mystics of mediæval times, as manifestations of a Divine Substance in which their own personality faded quite away, but as individually and personally of infinite importance as types of that great Humanity whose operations and constitution could only be discovered through the study of one of the parts of which it is composed. Let us find the laws that govern the individual, it was said, and we shall know all about the mass. There was no question of service of Humanity or of a so-called social spirit; life was rather to be looked on as a training-ground for the unit, and each man was regarding the exercises that were taking place more as a spectator than as a participator in the fray. We can understand how, under these conditions, the spirit of criticism arose; how not only what men said, but how they said it, was counted of importance; how the morality became a morality of the conventions, of the world in which it was exercised, and how this soon degenerated into what we know as "preciosity." One curious feature in the movement, too, is found in the new importance given to women. Women found themselves recognised as intellectual units with the rest, and whether by accident or by virtue of their surroundings, a remarkable number of women, eminent

for intellectual attainments, with several of whom Descartes was intimately connected, came at this time into view.

These are, shortly, the intellectual influences under which the life of Descartes opened, and which served to modify the trend of his career. In modern times, at least, no age could possibly be chosen more likely to bring into being latent talent of whatever sort, and in no time was there more interest evinced in what concerned the natural as well as the intellectual world. For we must recollect that in no sphere of learning were the new intellectual movements more apparent than in that of natural science. The seventeenth century was the century in which science became a reality, and in which the scientific spirit infected men of all degrees. The movement took its rise, no doubt, in the century preceding, the century when the theory of the universe and man's place within it was completely revolutionised through the labours of Copernicus. But this revolution was not really accomplished until long after the lifetime of Copernicus, who brought his theories to light shortly before his death. Copernicus was followed by the Danish astronomer, Tycho Brahe, with his intermediate system, half Ptolemaic and half Copernican, which still left the earth, at least, a centre for the revolution of the sun and moon. But Kepler, with his theory of ellipses, by which the planets made their way around the sun; and, above all, Galileo, to whom we owe our present knowledge of the world and its relation to the universe, belonged much more to the seventeenth century than to that which came before. It was in 1633 that occurred the act which has for ever been the disgrace of Christendom—the condemnation of Galileo by the judges of the Inquisition, an act which seems to mark a sharp dividing line between the old order and the new; between the time when authority reigned supreme and men's whole concern was to read aright what was handed down to them from musty folios, and that in which they were free to search for and by themselves. It was the time when the old books were closed

and the new book, the great book of Nature, was at length opened up.

Another of Descartes' immediate predecessors, and also his fellow-worker, was Francis Bacon, who, though he rejected the Copernican theory, brought to bear on scientific subjects a practical English mind. His great idea in scientific matters was to bring the experimental method into application, and to discover whether what was held as science truly corresponded with the fact. His was no speculative mind like Descartes'; nothing satisfied him which could not be brought to the test of practice, and on every subject he brought to bear his incomparable power of insight. Knowledge was valuable to him for the use of man rather than for any abstract scientific interest.

Other great scientific men succeeded rather than preceded Descartes. There was Torricelli, almost a contemporary, with his theories of barometric pressure; Pascal, who followed out the same line of work and continued the same experiments; and finally, though later than the time of Descartes' life, and leading us to the succeeding century, came the great Newton. But, contemporaneously with Descartes, there was important work proceeding, in the direction of chemical analysis, by Van Helmont of Brussels, and a little later by our own Robert Boyle. Van Helmont was the first to call attention to those immaterial bodies we now call gases, and from him we first hear of the introduction of the balance and the consequent conception, hitherto disregarded, of "mass." Boyle, a founder of the Royal Society of London, carried on a similar line of work, and thus was the foundation laid for the future science of chemistry. But other sciences, hitherto practically unknown, had also taken their origin about this time. So early as 1543, Vesalius wrote his *System of Human Anatomy*, in which the old system of Galen was refuted; and anatomy could not now be studied without the accompanying science of physiology. Vesalius was professor at Padua, and here it was that William Harvey studied, the William Harvey who was to

become famous as the demonstrator of the circulation of the blood, and with whom Descartes was to prove himself not wholly an appreciative fellow-worker.

In political life, too, Descartes' youth was passed in a time of transition from the old order to the new. The House of Valois closed, in 1589, its memorable career in blood, through the assassination of King Henry III. by the hand of a Dominican friar. The change from the dynasty of Valois to the House of Bourbon was a change from a policy of vacillation, carried on by means of intrigue and assassination, to one in which the welfare of the nation was held more worthy of consideration than the intrigues of a monarch. In Henry IV., there came to the throne a king who made his country's interests his own; to whom it was his chief concern that his country should at length have peace in which to work out her own deliverance; and who aimed at reigning as a monarch who should also be a father to his people. The work, indeed, was no easy one: reform was urgently demanded on every side, and Henry had no parliament, in one sense of the word at least, to aid him or to make known to him his people's needs. Religious warfare within the country was put an end to, and the promulgation of the Edict of Nantes allowed the reformers to worship as they pleased, and yet to be recognised as good members of the State. Sully's reforms of the finances of the country counted for much, as also did his encouragement of manufactures and other patriotic undertakings. But when Henry once received the submission of the Leaguers, and became king indeed, he made himself beloved of his people for his own sake as well as for the reforms enacted; he impelled their loyalty in a way which no mere mitigation of taxation could ever have effected. In his case there was a personal devotion on the part of those who looked to him for relief against the oppression of the nobility ever fighting for their separate and personal interests. The shock must have been intense when this gay, manly, pleasure-loving king was smitten to the ground by the hand of an assassin.

Enough has been said to show that Descartes' life was destined to be spent in a time of intellectual and practical activity, such as we rarely find in combination. But it is still more rare to find one individual in whom the various forces of the times were manifested in the same degree as was the case with Descartes. It has been said that the ideal life should separate itself into three distinct parts: the first being devoted to study, the second to action, and the third to reflection. If this be so, the ideal was attained by Descartes, for his life divides itself in a very remarkable degree into three clearly marked out periods. The first, dating from 1596 to 1612, was devoted, naturally, to his education in France; then came his *Wanderjahre*, 1612 to 1628, spent in seeing the world, in travel and in warfare; and finally, what may be called his constructive period was reached after his active warfare was over, and this dates from 1628 to 1650. These three form periods so clearly marked off in Descartes' life, that it is most convenient to make them milestones in endeavouring to get some idea of that life in its completeness.

PART I

CHAPTER I

PARENTAGE AND CHILDHOOD, 1596-1612

René Descartes was born on the 31st of March 1596. Strange to say, we do not know this fact from Descartes himself; it is only derived, Baillet tells us, from an examination of the baptismal register and the family records of his house. He writes to a friend who wished to engrave and publish a portrait of him in Holland, with the date of his birth inscribed below, begging him to delete the latter, seeing that he had a particular dislike to the makers of horoscopes, to whose errors he might seem to contribute by publishing the information. Baillet evidently considers this a mere pretext to avoid the publicity of having his portrait published at all; but why we should deem it so it is difficult to say, for Descartes' own explanation appears rational enough. It seems to be well established, in spite of rival claims, that the place of his birth was La Haye in Touraine, situated on the Creuse about 30 or 40 miles from Tours, and not far from Poitiers. As to Descartes' ancestry, much has been written of a character similar to that usually found in the traditions which gather round the birth of a great man. As his biographer dryly remarks, surely those who have to refer to the merit of their ancestors can have little enough of their own to rest on. But in these days heredity counts for more than it did three centuries or more ago; and though we have not the material for

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determining the source from which his qualities were derived, it is at least of interest to know the surroundings under which Descartes was educated, and the sort of influences likely to affect him from the traditions of his family and class.

Unless report exaggerates its magnificence, Descartes' family was one of the oldest and most respected in all Touraine, and it had formed alliances which connected it with Poitou, Berry, Anjou, and Brittany. His father, Joachim, was the only son of a Pierre Descartes, a gentleman in easy circumstances, who, like the most of his class, had served in the army, but who had early retired from the service to lead the life of a country gentleman. When occasion demanded it, he was still ready to serve his king and country, and he helped to hold the town of Poitiers against the Huguenots in 1569, and otherwise upheld the royalist cause. Descartes' nephews, M. de Kerleau and M. de Chavagne, possessed the pedigree of their family, and traced their ancestry back many generations, proudly claiming that, during the whole long time that the family had existed, no *mésalliance* could be laid to its charge, although no very definite claim for distinction appears to have been established. On the other hand, a younger branch of the family of Descartes, or Des Quartes, or Des Quartis, as it was originally spelt, appears to have descended in the social scale and engaged in trade. One of this clan, however, a doctor, claimed successfully to be relieved of his taxation on the ground of noble birth.

Descartes' father, Joachim, whether disgusted by the state of ruin into which his country had been brought by civil and foreign wars, or whether from a naturally peaceful disposition, did not adopt the profession of arms, but turned his mind to employment of a civil nature, and became councillor of the Parlement of Brittany in the year 1586. The duties of Parlement only required his attendance half the year, and therefore he did not require to take up his residence at Rennes, beyond the time during which his work

necessitated his presence there. The Parlement, we must of course recollect, was one of those provincial bodies which held a position similar in nature but subordinate in influence to that of Paris, which was composed of a body of magistrates, and formed the Supreme Court of Judicature: in it the princes of the blood had seats, and it was sometimes presided over by the king.

Shortly after his appointment (the contract is dated 1589) Joachim married Jeanne Brochard, the daughter of the Lieutenant-General of Poitiers, by whom three children were born to him. The eldest of these was Pierre, called after his property, de la Bretailliere; he was councillor in the Parlement of Brittany, like his father, who procured this office for him in 1618, after establishing himself in the province. M. de Bretailliere's second son, M. de Kerleau, was, when Baillet wrote, the head of the family, and it was he who gave him access to the family papers. He was also a councillor, like his father and grandfather. Of his four sisters the youngest, Mlle. Catherine Descartes, also gave her assistance to Baillet, and she is said to have upheld the renown of her uncle by her mental qualities—so much so that there was a saying that his mantle had "fallen upon the distaff." René Descartes had a sister named Jeanne, who married a M. Pierre Rogier, and who died soon after her father. Of her we hear nothing from the philosopher's correspondence. René Descartes was the third child of his father's first marriage, and he was for a time made to bear the name of M. du Perron, greatly against his wish. The name came from a small "seigneurie" belonging to his parents and situated in Poitou,* but the entail he sold a few years after it came actually into his possession. The name was used practically only as a means of distinguishing René from his elder brother, and scarcely ever except amongst his family or in college. He took his own name whenever he left his home, and strangers soon changed it into the Latin form, Cartesius. This alteration was, of course, common

* Baillet, vol. ii., p. 460.

amongst men of letters, but it is rather a curious and interesting trait in the philosopher that he disliked the change excessively. He probably felt that it was a sort of affectation, and desired to preserve what had descended to him intact; the other was but a sham, and calculated to cause confusion, and give umbrage to his relatives. Clerselier did his best to introduce the word "Descartists" for his followers rather than the other common form "Cartesians," but, as we know, without success.

Descartes' immediate relations did not apparently possess any marked interest or individuality. His father he always spoke of with affection and respect. He writes to Mersenne when he heard of his death in 1640, that the news had made him "very sad," and that he "much regretted not having been able to spend the summer in France in order to have seen him before he died": but "God had not so permitted."* His brother Pierre seems not to have had his father's amiability. He did not even write to tell René of his death, and treated his brother as though he had disgraced his family by adopting a literary profession. The letters that passed between the brothers on business matters after their father's death were acrid in tone, and René speaks of confiding the care of the affairs left to him at that time, not to his brother, but to "my intimate friend." It is not unlikely that this should cause yet further estrangement between the two, and in any case they can have seen but little of one another. Probably the elder brother considered René an eccentric, hardly capable of managing his own affairs, and he himself remained, so far as we know, a country gentleman, interested only in his personal and local business.

As none of Descartes' other relatives gave evidence of talent or interest beyond the common, we should have been glad to have heard something of his mother, but of her we know practically nothing. At the time of her youngest child's birth, she was suffering from a

* *Correspondance*, vol. iii., p. 251 (Edition of MM. Adam and Tannery, 1897-1903).

serious affection of the lungs, which caused her death a very few days later. The prospects for the infant were not of the brightest, and we cannot wonder that he inherited, as he tells the Princess Elisabeth, a "dry cough and pale complexion," which he retained until he was more than twenty years old, and which made all the doctors condemn him to an early grave. Descartes' father did for him what he could to make up for the loss the child had sustained, but he himself ascribes his complete recovery from his delicacy to the inclination he always had to regard the circumstances of life from the point of view which rendered them most agreeable, and to the other fact, always emphasised by Descartes, that man should find his reason for contentment in himself alone. What was, however, of more importance for the immediate prospects of the child, was that he was given to the care of a nurse who, Baillet tells us, omitted to perform no duty that was demanded of her. And Descartes showed all the gratitude that he had reason to bear to one who had virtually preserved his life, and provided her a pension which he continued regularly to pay until his death. Her labours must have been rewarded, for, when about forty-two, Descartes writes that, thanks be to God, it was thirty years since he had had any illness that deserved the name. At that time he felt, he says, further from death than in his youth, and he trusts that if God does not show him how to avoid the troubles of old age, He will at least allow him time to endure them. No false disdain of life was his; as he says, "he loved life without fearing death." *

The first part of Descartes' life was spent in the town of Poitiers, where his maternal grandfather lived, and where his father liked to be during the few years of his first married life. René was, however, baptised on the 3rd of April (the fourth day of his life) at La Haye, in the parish church of St George, and his godfathers were his maternal uncle, René Brochard, and Michel Ferraud, Lieutenant-General at Châtellerhaut. We

* *Corr.*, vol. ii., p. 480.

are told that Descartes always held this sacrament in deep respect, and that after his death in Sweden, the extract from the baptismal register was found carefully preserved as bearing witness to his faith.

Occasionally Joachim Descartes went to enjoy the pleasures of the country on his own property of du Perron or at La Haye, the "seigneurie" which he shared with the family of Sainte Maure, and we may hope that little René likewise enjoyed the pleasures of a country life. The death of his wife, however, unsettled the father's plans, and made him wish to abandon his establishment in Poitou in favour of one in Brittany, where he had to spend half the year. There he finally settled with a second wife, and it was his home until his death.

The second wife was the daughter of a local official in the province, and she bore her husband two children, a son and daughter. The son, afterwards named M. de Chavagne, like his brother, became a councillor in due time, and left a son, who, after his wife died, took orders as a priest, and became *conseiller cleric* in the Parlement of Bretagne.

From what has been said, we can anticipate the probable character of Descartes' training. In a time when there was a sharp dividing line between the *noblesse*, even the *noblesse de la robe*, and those who condescended to engage in trade, Descartes' connections were distinctly with the former. His traditions would be those of the feudal superior, though not of the wealthy noble, the grand seigneur, who was so serious a menace to the throne. We should in these days talk of him as belonging to the professional class, but that would give no idea of the privileged position of those who could claim exemption from *la taille*, so far as it was a personal tax—who would think themselves in the highest degree demeaned by any family alliances which should break through the barriers thus conventionally imposed. The character of Descartes' early upbringing left a deep impression upon him all through his life. He was what was understood as being a gentleman

(*gentilhomme*), one who never forgot the courtesies and conventions of social intercourse. Sometimes we almost wish that his efforts after conciliation had not been so apparent. But his mannerisms were, after all, mainly upon the surface. His early life was spent much among courts, and with the army, and this being so, we cannot fail to marvel that he achieved the work he did, which certainly bore little relation to the life of a frequenter of Paris *salons* or a hanger-on at court.

Of Descartes' early childhood we know almost nothing, except that he was an extremely delicate child, and was left to the management of women for what at that time seemed the unusually long period of eight years. It is fortunate that he had as his playground the Garden of France, the soft, sensuous country with which Rabelais makes us so familiar. But not only is it a lovely, fruitful land where the grass never loses its green in summer-time, well-watered as it is by charming streams and rivers, but it also has the inspiring memories of times of chivalry and romance. All down the valley of the Loire are situated those old castles of Blois, Chambord, Chaumont, Amboise, etc., which in Descartes' time were standing evidences of the feudal spirit whose day was slowly but surely passing away. They suffered from the religious wars which devastated the country, and their thick walls and carefully planned fortifications were no more the safeguards they once had proved against the attacks of enemies abroad; the Court, too, gradually ceased to move about amongst the castles of Touraine, favouring rather the woods and gardens of Fontainebleau and St Germain. It was an interesting transition period into which Descartes was born, and the region was an inspiring one. As far as we can tell, however, he spent little of his life in the country, and any time so spent was either in his early childhood or in accidental visits; hence we cannot claim for it much serious influence upon his life. We can fancy the motherless child living a somewhat lonely life with brother and sister after the father married again and took up his abode in Brittany, though probably he

had relations on his mother's side to care for him, besides the constant attentions of his faithful nurse. His father, however, as Baillet tells us, did not neglect his delicate child, whom he laughingly called "his philosopher" because of the insatiable curiosity which he evinced, and the perpetual questions put to him regarding the reasons of things and their causes.* Such precocity may mean much or nothing; but it seems, if we may believe biographies, usually to characterise those whose future lives are to be occupied with questions of speculative interest. Anyhow, René's was not the precocity of an unduly stimulated child, for his relatives had alone in view the physical development of the body, and the best means of making him as plump as a child of his years should be. At a time when education began much earlier than it does now, his father decided to teach him nothing; but this design, however excellent in theory, was frustrated by the boy himself, through the disposition he showed for study. Seeing how circumstances stood, his parent very wisely came to the conclusion that least harm would be done to the eager lad by allowing him to follow out his bent, and procuring for him the means of carrying out his naturally implanted instincts. But it is carefully noted that the greatest caution was observed in this, that his first studies were easy tasks, simple and superficial as compared with what would be asked of him at a later age, which, indeed, considering the nature of his later studies, we may cordially hope was so.

When René was eight years old, in 1604, his father became seriously concerned about his son's education. And probably his choice of the form that his education was to take influenced his son's career more than anything in his life besides. For, by what may have been a happy chance, he heard rumours of the establishment of a new College at La Flèche, in Maine, which was to be conducted by the Jesuit fathers not long since returned from banishment to take up their special work of teaching. The choice of a school may mean little or much in

* Baillet, vol. i., p. 16.

these days, but it certainly can mean nothing now in comparison with what it meant in the early seventeenth century, when the new educational movement was revolutionising old ideas, and the work was being taken up with all the enthusiasm of those who had received fresh inspiration from without, and were urged forward in their work by no less an authority than that of the Papal See on the one hand, and that of their temporal king on the other. The Jesuit Order was, of course, established in Spain through the exertions of Ignatius Loyola, that strange and interesting soldier saint and enthusiast endowed "with the gift of healing troubled consciences," who, in 1540, obtained the sanction of Pope Paul III. for his little "Society of Jesus," which from its original sixty members ended in spreading throughout the civilised and uncivilised world. Preaching, confessing, dealing with troubled consciences of others, not neglecting their own spiritual life, but above all, teaching the young—these were the means by which its members' ends were to be accomplished. And no pains were to be spared in enabling the "Company" to do their work with all efficiency. They were not content with sufficient education to train the young in the way that hitherto had been thought sufficient. They began with their two years' noviciate, mainly occupied in spiritual exercises, and then spent five years in classical study. Five or six years were occupied in teaching in college, and finally four years at least were devoted to theology: in all, a course of sixteen years at the lowest computation was taken before ordination as priest, and yet another year passed before the second vows were taken, and the candidates became either "coadjutors" or "professed." The former undertook the ordinary duties of teaching or of pastoral ministration, and the latter, whose vows were more exacting, formed the small class from which were chosen the professors of theology and other dignitaries of the Order. The movement for establishing and reforming the religious orders, which came with the "Ecclesiastical Renaissance" or Counter-Reformation, which resulted from, or

was contemporary with, the Council of Trent, was mainly localised at first in Italy and Spain. But in the reign of Henry IV. a complete change took place, and France began to lead the way. The Ursulines, the Oratoriens, the Congrégation de Saint Maur, the Filles de Charité, followed in quick succession, but much the most important and influential Order was the Society of Jesus, endowed as it was with many special privileges, and an almost perfect organisation. Enemies it had, however, in plenty. Not alone were these to be found among the Huguenots whose animosity was certain, but perhaps more formidable because less avowed, was that of the ordinary citizen, the politician, the members of the parlements, lawyers, the Sorbonne and University. So influential was the opposition of the University that the Order was repulsed in 1554, but it was allowed by the Assembly at Poissy to establish the celebrated college of Clermont in 1564. However, the Jesuits cast in their lot with the League during the civil wars, and were banished by the Parlement of Paris in 1594, after the attempt on Henry's life with which the Order was popularly associated. Then came the reconciliation of Henry IV. with the Papal See, largely brought about by their efforts and negotiations, and in 1603, Henry decided to recall them. His reasons for this recall are variously stated: it may have been that he dreaded to have them as his enemies; it may be that he wished to satisfy the Holy See, or place them as a counterpoise to the Huguenots; but the most probable explanation is the simple one that this, the nation's king, felt, as he said himself, that they too were necessary to his State—the State that was to be representative of every interest. In taking this step Henry wholly disregarded the protests of the Paris Parlement and of his minister Sully. Of course, conditions were imposed; former establishments were to be continued, Italian and Spanish Fathers were to be provisionally excluded, and a special oath was required. But, on the other hand, new colleges were instituted, and amongst these was that of Descartes' education, the college of La Flèche,

which Henry endowed most richly, and to the keeping of which he bequeathed his heart. All this proves how much hold the Order had obtained on Henry, who even selected for himself a Jesuit confessor. Doubtless, he saw the work it had been doing in Spain and elsewhere on educational lines, and Henry of all French kings before and after, realised what education in every form meant to his State; weary of strife and faction, he saw that the regeneration of France, economically as well as intellectually, was to be found largely in the training that her youth was to receive; therefore he applied himself, on the one hand, to reviving existing industries, and creating new; and on the other, to educating boys of every rank on classical and scientific lines, and thereby preparing the way for the intellectual development of a future generation.

In regard to the College of La Flèche, Henry's idea was to institute a school more especially for the education of the young nobility. The reason for his choosing the little town of La Flèche was the fact that Henry had at Court as Comptroller of the Postal Service a certain M. de la Varenne, a zealous ally and helper of the Jesuit Fathers, who was likewise a favourite of the king, and he proposed the scheme of establishing the College at his native place. The king, anxious to further his designs, was taken by the suggestion of his favourite, and the place specially appealed to Henry because it had a connection with the Royal House, and more especially with his mother, Jeanne d'Albret, who resided there in 1552-53. There was situated in it a Royal Palace (the Château Neuf), which, not being necessary to the King of France, seemed well adapted to the necessities of a college of the kind which Henry aspired to institute. Large sums of money were required to render the buildings suitable for this purpose, as well as to give them the magnificence Henry considered requisite. A revenue of 11,000 écus was settled on it, with the requisite salaries for a doctor, an apothecary, and a surgeon, who were to charge no fees. In order that the scholars should not have to go elsewhere to study those subjects which were not usually

undertaken by the Jesuits, four professorships were instituted for the study of jurisprudence, four for medicine, and two for anatomy or surgery; and in addition to other endowments, funds were devoted to support entirely twenty-four poor students, and to provide a dowry for twelve girls who were to be brought up in piety. The king had also made up his mind to maintain a hundred gentlemen, and instruct them in every art suitable to their station; but this plan he did not live to carry out, and the college seems to have gradually lapsed from being of the first importance as far as the quality of the scholars was concerned, to becoming one famous only for the magnificence of its buildings.

M. Descartes, the father, was apparently anxious to send his boy to this excellent school as soon as might be possible after securing his nomination. The school was opened in January 1604, but he hesitated to subject the delicate child to the rigours of winter, away from the home where he had been so tenderly cherished. For that reason he delayed till Easter time, when he was handed over to the special care and consideration of Père Charlet, the rector of the establishment, doubtless with a full account of his physical delicacy and mental precocity, such as a fond parent's mind would suggest. The rector took at once to the child, so particularly confided to him; he placed himself in the position of parent and guardian for the eight and a half years which René spent under his care, and made it his particular duty to promote the physical development of the child as well as to supervise his intellectual training. It is one of the best signs of a lad or a man to show a due appreciation of his instructors, and Descartes was never tired of expressing his gratitude to these, and ever afterwards maintained the excellence of the school and the superiority of its teaching to that of the Dutch universities. Of Père Charlet particularly, he often speaks with affectionate esteem, which was fully reciprocated by the other as long as he lived; they were constant friends and correspondents until the elder man's death. Descartes was not entered as an ordinary

student, but as a sort of gentleman commoner, of the class for whose education the king had specially designed the College of La Flèche. Whether from dislike of the system of education, or because the parents preferred their boys to be brought up at home, the plan never succeeded, and the king's death prevented his carrying out the arrangements that might have made it popular. In Descartes' time there were but 24 *gentilshommes* to 1200 students, as we learn from the numbers at the procession on the king's death.* These

* Descartes' life in this, the most susceptible portion of his existence, cannot but have been a happy one. The Château Neuf was situated on the Loire, "queen of the gracious valley," and round it was a park planted with great trees forming shady alleys through which we can imagine the meditative boy wandering alone. In Sully's *Œconomies royales*, we find the gift of 100,000 écus recorded to the Jesuits of La Flèche, and the price of the Renaissance building which they erected was said to be 240,000 livres. Indeed, although there is a picture of Père Cotton receiving the keys from Henry IV., the work was not really completed until the reign of his successor, who sent to have the work completed, and gave 12,000 livres to the building of the church. Lord Douglas in 1608 gave 30,000 livres in order to found a seminary for Scotch catholic students at La Flèche, but the money was never used for the purpose for which it was bestowed. La Varenne himself entertained the Fathers until the new building was ready for their use: we cannot but feel that Descartes' father did wisely in postponing the delicate lad's advent till the more genial weather might help to counteract the probable effects of moving into a practically newly erected building.

In 1604, we are told, nine *cours* were given, viz., four of grammar, one of humanity, one of rhetoric, two of philosophy, one of moral theology. In 1606 there were 33 teachers, and in this year the king pressed the value of the school upon his seigneurs, who perhaps were less appreciative than he expected. However, the recommendation may have had its effect, for, in 1607, among 1500 pupils, 500 are said to have been of the *première noblesse:* the numbers apparently decreased next year. We gradually see in the training of the sons of gentlemen destined for the military profession in the exercise of their craft, the first growth of what afterwards developed into an entirely military institution. M. Clère tells us (1853) that Descartes' room is still shown, a dilapidated garret from whose upper window may be seen the park of Saint Germain below, and that it was for long known as the "Observatory of Descartes." † Were we to visit the establishment now, we should find it, after having passed through many phases under many governments, a Military College with a General at its head, and with gardens charming as ever.

† *Histoire de l'Ecole de la Flèche*, by Jules Clère, 1853.

gentlemen were allowed special privileges, and Père Charlet permitted one to Descartes which a modern schoolboy might well envy—the permission to lie in bed late in the morning, partly because of the delicacy of his health, and partly because "he remarked in him a mind naturally disposed to meditation." * Descartes, wonderful to relate, found this the most profitable time for meditation, when his mind was refreshed by sleep and his senses alert. The custom was one which he continued all his life, and we are told that it is to these early meditations that we owe all that is most important in what he has written on philosophy and mathematics.

Young Descartes came to school with a keen love of learning and a mind ready to receive whatever was supplied to it: so responsive a pupil it was a pleasure to teach. The first five and a half years of his course were, according to custom, devoted to classics, or, as they were then called, the "humanities"; and so far no special proclivities were displayed for one subject more than another. But the spirit of emulation was not absent, for we are told that he took pleasure in leaving behind him those who had previously excelled. He was good-natured too, and never failed, we are told, in yielding obedience to regents and prefects, in preparing the tasks set him in class, and in observing the rules of the house. Probably the temptations which might have come to a lad of more physical strength were no temptation to him, and he was happiest by himself with his books. In Jesuit colleges, we know that the greatest order and discipline have always reigned. The boarders do not go home excepting in autumn, and often not then, so that we can imagine the hold that is taken on the minds of the pupils, especially as letters are inspected, and interviews with relatives are very rarely private. Along with an almost military discipline the graceful arts were not at La Flèche excluded, even those of dancing and of fencing; and of the latter Descartes was no inapt scholar, as is testified by his

* Baillet, vol. i., p. 28.

afterwards writing on the subject, though unfortunately his treatise has been lost.*

There is little doubt that Descartes would have been a very different man had he been educated in a different manner: none could pass through eight or nine years of the most susceptible portion of life under influences such as were exerted by the Jesuit fathers, without feeling the effect until the end of life, and that regardless of whatever divergencies in creed might later on arise. We can quite feel in reading Descartes' letters that it was a real sorrow to him to have to separate himself even in appearance from those he loved and venerated as he did his early teachers, and he was always endeavouring to minimise those differences. Nothing could have grieved him more than to have known that his doctrines were finally rejected by the Order. The Jesuit instructors were not alone men of learning; they were also polished and agreeable in manner; and those of good appearance and of a cheerful and smiling countenance, were preferred before others equally excellent and learned, for the instruction of the young. The result attained was that the children did not only excel in their intellectual attainments, but delighted all by the polish and urbanity of their manners. There was perhaps another side to the training they received, which it was left to Pascal to publish abroad throughout the world in all the bareness of its truth; but that side did not, we may believe, seriously influence Descartes; Truth was to him his mistress in too real a sense, even from his boyhood, for any outside influence, however strong, to turn him from following in her footsteps; it was only on the surface that it could ever appear to have been otherwise.

Latin and Greek were studied at La Flèche, though

* In it he spoke, Baillet tells us, not only of the quality of the sword, but also of the manner of using it, showing how one could assuredly gain the advantage over one's adversary while one is in *mesure longue*, and how one could place him in *mesure courte*, and being there, defeat him. This subject he dealt with first in the case of equality of adversaries, and then in that of unequal opponents. Baillet, vol. ii., p. 407.

we may conjecture the knowledge of the latter to have been slight. It seems that, like many lads of his age, René composed poems when at school; but what may surprise us is that the practice was continued to the end, and that shortly before his death, while at Court in Sweden, he wrote a poetical work in French which has not survived. It was composed in a period of idleness at the Court of the Queen, and it was left unfinished; perhaps it was better that it was so, for, as Baillet remarks, although Descartes tried to conceal in pastoral or allegorical form his discourses on the Search after Truth and the study of Philosophy, "such mysteries signify little to the public while Descartes' other writings are available, where he explains his meaning without mystery."* Baillet evidently did not hold the work in high esteem, and, if we may judge from a poem, "Larmes du Collège de la Flèche," on the death of Henry IV., La Flèche was not the most poetical of establishments. In the *Method* Descartes tells us that he loved for their own sake the tales of classical lore, seeing that "to hold converse with those of other ages, and to travel, are almost the same thing"; and with Poesy he speaks of being "in rapture." Rhetoric, so important a branch of study in his day, he also speaks of with appreciation, though Baillet remarks that no time appears to have been devoted to its study beyond that prescribed. But Descartes was ever faithful to the ideals he so constantly held before him from early life till death. He says, "Fictitious narratives lead us to imagine the possibility of events that are impossible, and even the most faithful histories make such omissions or misrepresentations as to fail in attaining to the Truth, and lead those who regulate their conduct thereby to fall into the extravagances of the knights-errant of Romance, and to entertain projects that exceed their powers." He concludes, "Those in whom the faculty of Reason is predominant, and who most skilfully dispose their thoughts, with a view to render them clear and intelligible, are always the best

* Baillet, vol. ii., p. 408.

able to persuade others of the truth of what they lay down, though they should speak only in the language of Lower Brittany, and be wholly ignorant of the rules of Rhetoric; and those whose minds are stored with the most agreeable fancies, and who can give expression to them with the greatest embellishment and harmony, are still the best poets, though unacquainted with the Art of Poetry." * Such sentiments separate us by a great gulf from the old scholastic view, and show that we are entering upon a new phase of things where conventionalities are to give place to actualities, and the real is to take the place of the artificial and traditionally accepted. A new standard for Truth is being established which will lead us further than any in Descartes' time could fully realise.

For the study of history, Baillet says, on what testimony we are not told, Descartes had the bent which cannot fail to characterise those interested in the doings of their fellows, and even at this early period in his career, he was conscious that by careful reading much help could be obtained in forming just and equitable judgments. However this may have been in his youth, we cannot but be sensible that in later years the literary and artistic sides seem strangely lacking. The subjects that he discusses are hardly ever regarded in their historic aspects, and there is often even a want of interest in, and knowledge of, what is being done elsewhere on similar lines. There are few allusions to indicate that the writer was a man of large and varied reading, or that he had tastes outside the range of his own department. On the contrary, in a time when art and learning were at their height in Holland, we never hear anything even in his letters either of the artistic work of a Rembrandt or the learning of a Grotius.

René must undoubtedly have been considered no ordinary pupil, for we are told that, in consideration of the manner in which he performed his tasks, the regular attendance at lectures was dispensed with, as also much

* *Method*, pp. 6, 7. (References to the *Method* are from the edition of MM. Adam and Tannery, 1902. Veitch's translation is usually given.)

work done in common with the other boys. The information is given—alarming as applied to a child of René's age—that the leisure thus accorded was, by his desire, given to the acquisition of a clear and certain knowledge of all that could be useful in life to satisfy the intellectual ambitions which had been aroused within his mind by previous study. "I had been taught all that others learned; and, not contented with the sciences actually taught us, I had, in addition, read all the books that had fallen into my hands, treating of such branches as are esteemed most curious and rare." As these words might seem to indicate, there was no false modesty in Descartes' estimation of his powers. "I knew the judgment which others had formed of me; and I did not find that I was considered inferior to my fellows, although there were among them some who were already marked out to fill the places of our instructors."* Thus was he led to consider that, since his own age was as flourishing and as capable of forming judgments as any that were past, he was justified in judging that, as far as he was personally concerned, the science of the past must now be superseded by something which was capable of giving greater satisfaction. Although he speaks of the benefit accruing from the perusal of books as resembling the "interviewing the noblest men of past ages who have written them," we see the same spirit in Descartes, the boy, that appeared so clearly defined in later days, when he recommended to his disciples, not the reading of many books or occupation with the thoughts of others, but meditation in solitude—that solitude which he took so much pains to obtain. Such sentiments are respected in the man who has grown to maturity, but we cannot fail to wonder how they struck the boy's companions: we well know how they would be regarded in the present day, when divergence from the normal is ill-regarded, and when self-assurance so complete would not fail to be looked on as self-conceit, and dealt with as such; it is, however, difficult to gauge

* *Method*, p. 5; (Veitch, p. 6).

the sentiments of a Jesuit schoolboy in the seventeenth century in France. For him, public opinion was, we may believe from all we hear, formed by the teachers rather than the taught, and these were so intent on learning that they welcomed any manifestation of the love of it with the greatest joy. Though in many ways they were bound down by strictest rule, they had the discretion to know when that rule might be safely and judiciously relaxed.

We should imagine René to have been a lad whose friendships were not numerous, but whose friends, when made, were very real. His principal friend, as we may readily believe, was considerably older than himself, indeed, strangely so, considering how carefully younger boys were kept separate from older lads in Jesuit schools. Marin Mersenne was born seven and a half years before Descartes, and had pursued his studies at another college for a considerable time, when the fame of La Flèche made his parents send him there about the same time as his future friend. As Mersenne passed from La Flèche to the Sorbonne, the two must have been separated for no short time; but they kept up a regular correspondence until death, and never forgot their early days together. Another of Descartes' friends, older than himself, was René le Clerc, who afterwards became a bishop, but with him the friendship was not in the same way continued. For his teachers, Descartes had the warmest regard. In 1644 he writes to Père Charlet that he is overjoyed to hear from him that he preserves his interest in his former pupil, and does not disapprove of his employment. He speaks of the great obligation he owes to the Order, and more especially to Père Charlet himself, who took the place of a father in his youth. He passionately desires that that friendship may never be impaired by anything he may do or write, for which writings, endeavouring to establish their orthodoxy, he implores a favourable consideration. To another Jesuit at La Flèche he writes about the same time of how much he would like to return to the scene of his youthful life, where he

received the seeds of all that he had ever learned. In offering the "Principles" to Charlet, Descartes says that to him he owes all the fruits culled from his study, as well as the prevention of his being misinterpreted by others, and for this last he also thanks his other instructor, Père Dinet, who became provincial and confessor to the king. If Dinet were, as would appear, Descartes' friend, he must have proved one of no small influence: it is with joy, Descartes says, that he learns that he has read his writings without disapproving of them. But Descartes' expressions of esteem for the place of his education and for the members of the Company of Jesus, are continual throughout his letters.* He was certainly no ungrateful pupil. As he says to Dinet, he would rather be taught by the Order than by anyone else in the world: "I honour and respect them still as my masters and the sole directors of my youth." And in an interesting letter written to a gentleman who inquired of him regarding the education of his son, Descartes strongly dissuades him from sending the lad to Holland, because philosophy is so badly taught there: in the Jesuit schools which he recommends it is, he says, taught much more thoroughly, and there is no school in which the teaching is better than in La Flèche; the very fact that lads repair to it from every part of France gives an acquaintanceship with very various minds, which is as beneficial as would be travelling. Besides, the equal treatment accorded by the Fathers to lads of every class is, Descartes considers, excellent for those who have been somewhat spoiled at home and are all the better of mixing freely with their fellows.†

Descartes followed out the full course of studies prescribed by the Fathers, and in the sixth year of his stay he commenced the course of Philosophy. It was just then that the news arrived of the assassination of the king, and we may conceive of the horror which the news would inspire. The loss to the nation was irreparable, and to none would this seem more certain

* *Corr.*, vol. i., p. 383; vol. iv., p. 156 *seq.*

† *Corr.*, vol. ii., pp. 377, 378.

than to the establishment which he had founded, and to which he had consigned the keeping of his heart. René Descartes was a boy of fourteen years of age when the news came, and for some considerable time all the ordinary work of the college ceased, in view of the preparations for the great function that was to take place on the arrival of the precious relic. Fifteen preliminary days were spent in public prayer, in composing suitable lays and funeral orations, and in all the other preliminaries for the great occasion: if boys of fourteen in any way resembled boys of similar age of the present day, their grief must have been considerably assuaged by the cessation of work, and all the bustle and stir of the necessary preparations. Of the ceremony itself we have full details. The heart had been solemnly placed in a Jesuit chapel, and then exposed to the public view. On the 31st of May, Père Armand, 20 Jesuits, and many gentlemen belonging to the court, conveyed the heart to La Flèche, where an immense assemblage had collected to receive it. The provost and his archers headed the procession. After it came 1200 scholars, then came various clergy, the Jesuits of the college, tapers in their hands, then M. de la Varenne, and 24 gentlemen students, among whom was René. The officers of justice and bourgeoisie concluded the procession, which went outside to receive the heart in a great meadow. Père Armand here received the heart, hitherto borne upon a carriage; and, preceded by a herald and accompanied by archers, they made their way to the church, where Père Cotton preached the funeral sermon. The heart was finally deposited in an immense ark placed in the middle of a large court. The whole college was draped in black, and everywhere were escutcheons, death's heads, emblems, and epigrams. In the composition of these last, his biographer feels certain his subject must, considering his talent and taste for versifying, have had a part; but we may be allowed to hope that this was left to his instructors, and that he and his companions were allowed to be in the main spectators of the pageant, as also of the

ceremony that succeeded when the heart found its final resting-place within an urn on the altar of the church. Each year it was ordained that a memorial service and procession should be held on the 4th of June, the day the heart had been deposited, which day was to be observed strictly as a holiday. On the first anniversary there was erected an enormous effigy of the king, and various ceremonies took place in which religious services were mingled with theatricals, France being represented in her stricken state surrounded by all the royal virtues. Two years later, the college was honoured by a visit from the reigning king, but René had by that time ceased to be a pupil. One cannot but wonder in reading the account of those elaborate ceremonials, what would have been thought could any of the spectators have looked forward nearly two centuries, and seen the object of their adoration torn from its place and thrown to the winds. What the effect of the pageant was on Descartes, we cannot tell; doubtless, he who possessed all the modern faculty of turning his thoughts from outside things upon himself, and considering how these would affect him, regarded this, like the other ceremonials which in later life he attended, as part of his education—that education which was to prove so fertile a source of interest so long as he lived.

After three weeks of interruption, work was once more resumed at La Flèche, and René took up his philosophic studies, more especially giving his attention to the study of moral philosophy, which had only been commenced by him a month before. In the very interesting criticism of the value of his teaching given us in the *Method*, Descartes allows that that of Morals had not been without its use: but we can hardly fancy that the morality which he taught bore much relation to the scholastic doctrines of his youth. This extraordinary boy certainly criticised the moral teaching of the ancients as it was brought before him. He compares their disquisitions to "towering and magnificent palaces with no better foundation than sand or mud: they laud the

virtues very highly . . . but give us no adequate criterion of virtue; and frequently that which they designate with so fine a name, is but apathy, pride, despair, or parricide."* But most remarkable was his progress in logic: even his faithful biographer finds difficulty in crediting it. From his fourteenth year, it would appear, Descartes came definitely to the conclusion that he must break with the traditions of the schools and strike out new lines of his own. He found that logic as thus taught with its syllogisms and the rest "are of avail rather in the communication of what we already know . . . than in the investigation of the unknown." He discovered that so much error was mingled with what was true that it was almost as difficult to separate the two as to "extract a Diana or a Minerva from a rough block of marble." Whether, as has often happened, the writer somewhat antedated his discoveries or not, this change of view was a forecast and a promise of the change of method to be so shortly laid before the world. Probably, at first, without quite realising the reason, Descartes, in these early days, felt a certain dissatisfaction with his teaching: he felt that he was dealing with words and phrases rather than with thought; that really all the elaborate reasoning that was carried on brought the reasoner no further; that it was not Truth which his instructors sought to discover or succeeded in discovering, but certain theses arbitrarily established. Descartes himself—an obscure schoolboy in Maine—did not know that he was but the spokesman for the civilised world: the time was past for hair-splitting discussions and mediæval ways; men were waiting to be fed with something which would satisfy them, and not only give them topics for dispute, but enable them rationally to explain themselves and their relation to the outside world.

Probably the studies that most influenced young Descartes' future life were those which he pursued the year following that devoted to purely speculative subjects

* *Method*, pp. 7, 8; (Veitch, p. 9).

—or rather to logic and the philosophy of the schools, for theology was a region debarred to lay students, and was not therefore taken into account. This year was given to physics and metaphysics, and this prepared the student for the year of mathematics which was to complete his course and prove so satisfying in meeting the difficulties which had so plentifully arisen. The physics of that time were naturally very different from what nowadays we understand by the word. The days of well-equipped laboratories, of the experimental method, were not as yet: men were taught to accept what was put before them, and to make sure that no counter-theories were advanced which might not harmonise with those of orthodox theology. It was not, of course, that such theories had not been openly put forward by many, and above all by the great Copernicus, but such teaching was strictly banned by the Church, and probably was not even mentioned in the teaching of the Fathers. Whatever his studies in physics, however, philosophy was to him a subject which he could deal with *con amore:* the Humanities could never have aroused in him the enthusiasm of his later studies—the studies which he believed were to unlock the mysteries of life and make clear what had hitherto been dark. But though the youth was disappointed in his search, he learnt a more important lesson.

The greatest lesson the schools have to teach is one which the self-sufficiency of mediæval times did not usually succeed in learning. It was the lesson of the Wisest Man, the lesson of his ignorance. We cannot but agree that if Descartes, as he tells us, learned so much, he did not spend his eight years at La Flèche in vain. Most men start forth in life armed with weapons which they count all-powerful, ready to attack and combat error, and lay hold of that Truth which they are told is standing ready to their hands. And most men also turn back from the quest in a spirit of disappointment, for they have discovered that the truth is not here or there, that there is no guide, however wise, who can

direct them to it—all he can do is to set their faces in the right direction. So Descartes tells us that he might have been of those whose modesty informed them that they should not try to quit the beaten highway, since by so doing many wandered in the wilderness for life, and who, seeing that there are some who know truth and error better than they can, trust to the opinions o those they think are qualified to judge, rather than to their Reason, but for this one insuperable objection. He had not one teacher, but many; the doctrine was not one, but manifold; no opinion, however absurd, can be imagined which has not had its supporters. Opinion really seems to be mainly a matter of birth and education; it varies with country and traditions; what was well thought of ten years ago is to-day extravagant and ridiculous. The majority is more likely to err than the wise one, and yet that one is never to be found. Reason alone is left to serve as guide.*

The lesson is a hard one for all to learn who wish to start on the pilgrim's way. If they follow Descartes' footsteps, they must learn that there is nothing short of seeking for themselves, that in the seeking there is the finding, but nowhere else. He gives us in his *Method* the instrument for ascertaining what is true, but in so far as it is a "Method," and not simply the soul's desire, it will be found to share the fate of other "systems," above and beyond which the bright luminary shines supreme.

The last year of Descartes' education was that in which he pursued the study which he always looked on as the reward for all his previous futile toil. This, of course, was the study of mathematics, in which he found the clear and simple reasoning, the evident demonstration for which his soul yearned. When he followed the long train of simple reasoning by which geometers reached the most difficult conclusions, it dawned upon him that all knowledge to which man can aspire is mutually connected in a similar way. "There is nothing," he believes, "so far removed from us as to

* *Method*, pp. 15, 16.

be beyond our reach, or so hidden that we cannot discover it, provided only we abstain from accepting the false for the true, and always preserve in our thoughts the order necessary for the deduction of one truth from another."* We must, he says, begin with what is simplest, and work gradually from that as our starting-point, very careful to make certain of each step as we go. The geometric method delighted Descartes, and he could not sufficiently marvel that it had not been made use of more. At once he attacked geometry and algebra, and as, according to Lipstortius, he was allowed considerable latitude as regards the studies proper to his class, he was able to devote his time to solving problems in a manner which astonished even himself. He attained "such ease in unravelling all the questions embraced in the two sciences" (geometry and algebra), that he tells us, "In the two or three months I devoted to their examination, not only did I reach solutions of questions I had formerly deemed exceedingly difficult, but even as regards questions of the solution of which I continued ignorant, I was enabled, as it appeared to me, to determine the means whereby, and the extent to which, a solution was possible."† What especially delighted him was to find that in any one given point he could discover *all* that on that given point is to be discovered: and if reason was so effective here, what, he considers, might be expected on its application in a similar way to other sciences?

One can imagine the eager boy (like that other boy mathematician who was so soon to follow in his footsteps as one of the prodigies of his century), paper and pen in hand, revived by the sleep of the night, working out his problems in the early morning light. Of course we are not called upon to believe all the marvellous stories told by Lipstortius and others about the boy's achievements. We are told, for instance, that Descartes' great mathematical discovery—that of the application of algebra to the problems of geometry—was made at this period of his life, when he was a lad

* *Method*, p. 19. † *Method*, pp. 20, 21.

of only sixteen, a tale well-nigh incredible. Indeed, we must recollect what teaching in geometry he would probably receive. So far as we know, the algebra taught him would be only such as existed before Vieta's day: it was after this time that the golden age for pure mathematics dawned, since the science became extended by the introduction of new methods, which, up to Descartes' time, were little known. Formerly, men had been concerning themselves with trying to re-discover the so-called "analysis" of the ancients—Descartes is given the credit of having succeeded in accomplishing this end—whereby the most difficult of problems could be solved; and about this time numerous translations and annotations of old books, most of them of Italian origin, began to appear. The theory and solution of equations likewise received considerable attention from the earlier algebraists, and the signs plus and minus (+ and −), as also that of equality (=), were by them for the first time introduced. Vieta, in France, the most famous of the writers of his time, who introduced the letters of the alphabet to stand for quantities that are known, and advanced the theory of equations, published his works about 1598, and these, we presume, might be known to Descartes' teachers, especially as their propounder held an official post in Paris. But if this were so, they did not place his writings before their pupil, for Descartes tells us most explicitly that he had never seen the outside of Vieta's book while in France, and even when well on in life, he did not appear to have had a minute or intimate knowledge of his writings. Hence the mathematical teaching that he received would be of comparatively slight a character, as we may perhaps imagine from one year only being given to its teaching, while two were devoted to philosophy. It is doubtless true that Descartes, as Lipstortius says, went far beyond his fellow-pupils, and even succeeded in puzzling his instructors, setting and working out his problems by himself as he lay in bed in that little room overlooking the park, now pointed out as his.

PART II

CHAPTER I

YOUTH AND WARFARE—1612-1619

In August 1612, his eight years' course being more than finished, Descartes left the school which left so deep an influence upon his future. He returned to his father in Brittany "overwhelmed by the blessings and praises of his teachers." How little these count for we all know; how often the early promise fails of being realised, and the boy who has been top of his school develops into a commonplace and uninteresting citizen. There were probably no specially inspiring influences at home; the lad's mother was dead, his father was a well-conducted lawyer whose aspirations were most likely bounded by the limits of his profession and his province. The elder brother must have inherited the narrow prejudices of the *demi-noblesse* of the time: he was so full of the small glories of a well-allied and well-regulated family, that he thought really important work, outside the exercise of arms or the practice of law and management of petty politics and local assemblies, derogatory to dignity. Of the sister we hear nothing, and the second family were probably practically unknown to René. We can fancy, though we do not know, that there may have been difficulty in fixing on his profession, though, as younger son, there were practically but two which were open to him. The lad was at a difficult age—too old for school, too young for starting in life—and for one reason or

another, after his constant work under the eyes of his masters, he did not quite know how to make use of his newly earned liberty. Probably none but those who have been under their control know the effect caused by sudden emancipation from the constant care and attention of the ever-watchful Fathers, more especially when that freedom coincides with the development of the unformed boy into the grown man.

Tepelius and others assert that Descartes was sent to complete his studies at the College of Clermont, but there are reasons beyond the self-evident one that we hear nothing of such a circumstance from Descartes himself, which make this impossible. Clermont was not re-opened at the same time as La Flèche: Henry IV., it is said, did not wish competition with his favourite. When its opening was allowed by Louis XIII., there were further delays which postponed the event till long after this time. If Descartes had attended any other college we should doubtless have heard of it, for he never tires of telling us of the attractions of La Flèche, and never fails to send copies of his books, when published, to his old instructors: no pains were spared by him in endeavouring—vainly as it appeared—to obtain from them an entirely sympathetic hearing. We feel that he looked back on his schooldays as the happiest in his life: no serious difficulties had occurred to him then which seemed impossible of solution. The difficulties that did occur were but obstacles which had to be surmounted, and the sympathetic Fathers were ever near to lend their best aid and encouragement to their favourite pupil. Now, he had to fight his battles himself, and he had already committed himself to a method of thought which would make these battles all the harder. If we may believe his biographers—and surely we may hope that they exaggerate, and that he had some of the weaknesses of his kind—the laurels with which the lad was crowned seemed to him to be but thorns, so convinced was he of his real ignorance in all his success. All that the world—the small world at least of La

Flèche—so marvelled at, was to him no mine of learning, but, on the contrary, only doubts, embarrassments, and consequent mental distresses. Not only did he despise his own knowledge, but—and this is really comprehensible both from what was likely to be the case then, and from his attitude to them in later life—he extended his disdain to the work of others, even of the so-called *savants*, and, indeed, he could not hide his contempt for what were denominated the sciences themselves. Was it, he asked himself (and how many have, since his day, asked the same question ?), that the knowledge which he sought for was an illusion, a mirage which enticed men on, just to disappoint them? Surely his time and reflection were only wasted. His age was no less healthy and productive than others, and there was no reason for supposing it peculiar in its deficiencies; was not the conclusion evident that he was seeking where there was no likelihood that he should find? Probably he had erred in concerning himself about such things at all.

We know the phase through which the young man was passing, and sometimes we may feel disposed to smile. But it represents a critical time in any one's life, because it indicates a turning-point. It is easier, on the whole, when the early life is the thoughtless time, and when the sudden call is not to see the vanity of self-culture, but to think of serious matters at all: and this is the common experience of men. But when the seriousness of life takes possession of the soul too early in its development, there is apt to be a revulsion, not temporary but permanent, and the result may be disastrous. Fortunately for him and for the world, Descartes' was too strenuous a mind to allow so fatal a result to come about. He came through his experiences scatheless and unharmed, but the way through which he had to travel was a long one.

Of course, to most lads, the very evident necessity of earning their livelihood prevents their wandering far in devious paths, but Descartes, for better or worse, was under no such immediate necessity. "I was not, thank

Heaven," he proudly says, "in a condition which compelled me to make merchandise of Science for the bettering of my fortune."* For him there were two subjects of paramount importance—himself and, in so far as it assisted him in his investigations, the "great book of the world." In 1613, disgusted with the knowledge that was no knowledge, he made up his mind. All book-learning was cast aside, and (in strange likeness to that immortal figure who was to serve as an impersonation of the seeker after Knowledge who has found Knowledge vain, and drinks of the sweet-tasting draught that is to bring with it the sweets of liberty and sensual enjoyment) Descartes exclaimed that he would no longer be deceived by the "professions of the alchemist, the predictions of the astrologer, the impostures of the magician, or the artifices of any of those who profess to know things of which they are ignorant."†

> "Habe nun, ach! Philosophie,
> Juristerei und Medecin,
> Und, leider! auch Theologie
> Durchaus studirt, mit heissem Bemühn
> Da steh' ich nun, ich armer Thor!
> Und bin so klug, als wie zuvor."

Fortunately, Descartes' choice was not so tragic as was Faust's; he spent his youth in learning to know the world without the fatal results that so often are the accompaniment of that knowledge. He thought that, having failed so far in the accomplishment of his ends, he should spend the "remainder" of his youth (and he was only sixteen!) in travelling, visiting courts and armies, and generally collecting experience. How much his future conduct was premeditated, and how much was due to the instincts of the moment, we may be allowed to judge. At any rate, when he looked back on the course of his life and wrote his reflections upon it, all appeared as an ordered whole, and he believed, without hesitation, that he had deliberately considered that his life would be more wisely ordered and his judgments would be

* *Method*, p. 9. † *Method*, p. 9.

more correct, if he mixed with the world and learned the various opinions of men, than if he remained shut up in his study, a solitary student. In the latter case, he might be devoting himself to work which would foster vanity without helping mankind; the vision of Truth—after which he all the while secretly yearned—might be obscured from view.

However the circumstances were, the fact was certain that the much-conned books were shut, and to those, at any rate, who could not know of the existence of any deeper reasons, young Descartes was doing what a hundred other young men of quality whose necessities did not compel them to work were doing as well. What must the feelings of the good Jesuit Fathers have been when they watched this strange new development in their favourite pupil. He never reproached them, it is true, but he ascribed little of any success achieved to the lessons they taught. His biographer remarks that he did not forthwith forget all he had learned, and waste his time as others had done before him. But nothing is more difficult to foretell than how a clever lad may develop, what strange twists and turns he may take, and how external circumstances will affect him. Some men have to wander far in the world and follow many devious paths before they find themselves in the way which nature planned out for them, and recognise it as being the one which they were intended to follow.

The first year of his freedom from scholastic discipline was spent by Descartes at Rennes, where he made the acquaintance of his family, rode, fenced, and made himself proficient in all the exercises held suitable to his condition in life. In natural course, he should now have joined the army of France. But the boy was young still, and worse than that, to all appearances delicate, and his father thought it too early to expose him to the hardships of a soldier's life, and to the perils of war, which in those days were not small. He thought it good for the lad first of all to see something of the world in the ordinary colloquial sense, and hence he arranged to send him to the metropolis with no better

guardianship than that of a valet and some servants. If at this date life in Paris for a young man of quality bore any sort of resemblance to that with which we are made acquainted through the immortal writings of Dumas, we cannot wonder at Baillet's stricture on young Descartes' guardians in sending him so ill-attended. But without taking too seriously the adventures of the heroes of romance in an age not very much later than that with which we are concerned, we may feel sure that the experiment was a perilous one. Probably, the young man wished to go and seek adventures, and gain a knowledge of a world hitherto as thoroughly unknown to him as it might be to a girl freshly out of school, and his father might not have means to send him under the protection of an abbé. After all, even Baillet who, himself the writer of lives of the Saints, had evidently a high standard of morality, exonerated Descartes from any great excesses, or, at least, from giving way to intemperance in any form. But he does confess that he was not proof against the temptations of companions who got him to accompany them in their excursions, and with whom he played and amused himself after the manner of the young men of the time. He tells us, too, that the gaming table was rendered more attractive by the success which there attended his efforts, specially in play in which "ingenuity counted more than chance." * Of any other than Descartes, this statement might want explanation, but in his case we can understand that whatever he set his mind to, whether it was games of chance, or the physical exercises which were considered essential to a gentleman's education, he would apply his mind not only to the practice but also to the principles, and not remain content till both were mastered. He used to say that if he had been by birth a working-man, and had been taught a trade, he should have succeeded perfectly, and this we can quite believe.

Probably, in spite of the exaggeration of biographers who had little understanding or sense of the humorous side of life, Descartes' excesses were not great, and

* Baillet, vol. i., p. 36.

his father's confidence was justified. Had he been entirely carried away by frivolous companions, he would not have made the friends he did—friends considerably older than himself, and already deeply interested in their work. It was soon evident where his real interests were.

Marin Mersenne, his old acquaintance at La Flèche, where, being seven years his senior, he was naturally much more advanced than Descartes in his studies, re-appeared in Paris. While at school the difference in their ages prevented the close friendship or companionship which they might otherwise have desired, and Mersenne before long left La Flèche, probably for the Sorbonne, and for many years their friendship was interrupted. Now Mersenne re-appeared in very different guise. After leaving the Sorbonne he attached himself to the Order of the Minims, and took the habit in a convent not far from Paris in 1611. He was ordained as priest in Paris just six months after Descartes' arrival, and there the old acquaintance was renewed on terms comparatively of equality; the influence of the older man upon the younger appears to have been entirely for the good, since he aroused new interests in the young lad's mind, which gradually detached him from the idle life he had been leading. The two friends were not long in commencing their favourite studies and in forming the intimacy which was to last till death. But a speedy stop was put to their intercourse in 1614, by the sudden order to Mersenne from his provincial to go to Nevers, there to teach philosophy to the young clergy of his Order. This was a severe blow to Descartes, and might have meant his returning to his old companions. But the effect, we are told, was quite the contrary: after his short taste of the world, he was conscious of a sense of dissatisfaction, and felt constrained to withdraw himself from the "great world," and renounce his old friends in order to apply himself once more to the study which he had temporarily abandoned. It is said by a certain M. Porlier, and recounted by Baillet, that

he established himself in the Faubourg St Germain—not a very remote spot, one would say—where in a house out of the way of sounds, he shut himself up with one or two servants, without telling friends or relatives where he was. It is in any case almost impossible to believe the account that Baillet gives of how, on his retreat in 1614, after Mersenne's departure, he spent not only the rest of that year, but also the two following years, almost entirely without sallying forth at all, without seeing a friend excepting one or two like-minded mathematicians, and doing practically nothing except cultivating the knowledge of geometry which he had begun at college. Certainly, if it is true, his golden youth had been of short duration; and he had not taken long to eschew the world and its ways, if at eighteen years of age he was able to renounce them so completely. Alfred Fouillée, however, tells us that really he was neither hidden in the Faubourg St Germain nor with his relatives in Brittany, as his friends naturally conjectured, but that, probably at the instigation of his father, he was studying law at Poitiers, where, indeed, his name has been discovered by M. Beausire on the register of the university: the date given is November 1616, when he is said to have taken his baccalauréat in law.* This explains a heretofore inexplicable portion of Descartes' life. It may well be that geometry was receiving more attention than his legal studies, though they cannot have been quite neglected, but the mysterious retirement from the world is satisfactorily elucidated without putting too much strain on our credulity. There certainly was a mystery about his sudden retreat. Doubtless he really wished to make a fresh start with other friends, and, afraid of subjecting himself to tiresome solicitations, set off without telling them whither he was bound, or even saying good-bye: his friends at length, we are told, gave up hope of seeing him again, the more

* Nobilissimus dominus Renatius Descartes, . . . creatus fuit baccalaureus in utroque jure. . . .

—*Descartes*, by Alfred Fouillée, p. 9.

especially as he did not re-appear on the occasion of the Spanish marriages. They must have known his liking for shows and pageants, which followed him through life.

Another friendship made by Descartes in Paris was that of M. Mydorge, reputed the most distinguished French mathematician of the day, in succession to the great Vieta. Like Mersenne, Mydorge was older than Descartes, having been born in 1585. Like Descartes, he belonged to a legal family, and about the time of their becoming friends he married a Mlle. de la Haye. He himself, at this time, held the title of Councillor ; but, instead of devoting himself to his parliamentary duties, he sought a situation which would allow him to give up his time to his favourite studies, which sinecure he obtained. Descartes was specially attracted by Mydorge, and the attraction seems to have been reciprocal ; for, as in the case of Mersenne, his friendship only ended with death. Possibly it was his example that encouraged Descartes to make a study of law : he also might have obtained the much desired title without being troubled with corresponding duties.

Baillet gives a naive account of how Descartes had become too secure of his solitude, and ventured occasionally to walk with fewer precautions ; in this way he was met by one of his former boon companions, who refused to leave him till his abode was discovered. This friend so disturbed his solitude and troubled him with his importunities, that once more he was constrained to re-enter the great world, by which we may conjecture that, his legal studies being ended, he returned to Paris. He was not long, however, in discovering that his former pleasures palled upon him. The charms of a life of pleasure were not equal to those of the intellectual pursuits from which he could not tear himself. He succeeded in enduring the fêtes of Christmas time and New Year as well as under the circumstances he could. But none of these pleasures were pleasures to him, with the exception of music, of which enjoyment, Baillet tells us, he could not but be sensible, owing to

his knowledge of mathematics! We may believe that this pleasure was not wholly determined by the study of the intervals of harmony, for of these he hardly could be even conscious unless he at least possessed some ear for sound.

Christmas and New Year festivities passed over, but the frivolous side of life attracted Descartes no more. At the same time, his studies did not altogether give him satisfaction. He felt that he did not really know the world, that there were things to be learned that no books could teach, and that could be learned without running to the opposite extreme and living a life of purely sensual satisfaction and enjoyment. In days when a certain amount of travelling comes to all men as a matter of course we do not realise how much it meant to those for whom it was a special luxury dearly bought by many discomforts and inconveniences. But Descartes thought that this should be part of the education of a man of culture, and he turned his mind to the only practical way in which he could accomplish it, which was in going to the wars. There does not seem to have been much patriotic feeling in the proceeding, though possibly there was more than first appeared; in any case, we must just consider for a moment how the great nations stood in this century of fighting, and why Descartes should elect to fight under Prince Maurice of Nassau.

During the latter half of the sixteenth century, the Protestants in Germany had found things going well with them: Protestantism had discovered a system so corrupt that reform was instantly demanded and the old faith was apparently overthrown. But once this work of destruction was accomplished, difficulties seemed to crop up on every side. Disputes were within the camp, and Lutheran and Calvinist controverted one another with bitter acrimony. Lutheranism allied itself to State control, while Calvinism fought for its creed in other and more independent fashion. Inward dissension was a cause of weakness, but even more than that was the growing power of the old faith, now at length forced

into much-required reform, and with missionaries who did their utmost to reclaim lost ground. Protestantism in Spain and Italy was crushed. Poland was restored to Catholicism, and in Germany, early in the new century, Catholicism was restored in the three archbishoprics of the Rhine. In south Germany, Ferdinand of Bavaria, cousin of the emperor Rudolf II., made the establishment of Catholicism in his hereditary dominion the work of his life, and his example was followed by the emperor in Austria, Bohemia, and Moravia. In Bavaria, Catholicism obtained complete predominance through the exertions of Maximilian and his father. Difficulties soon arose between the followers of the two religions ; the Protestant party suffered by its divisions ; and on the one hand a Union was formed by the Protestants of the Rhineland, while on the other the Catholic League was instituted. Just when Catholicism seemed on the verge of triumph, a sudden change took place. The question of succession to the duchy of Cleves, Jülich, and Berg arose—a question which was complicated by religious differences. The Emperor Rudolf claimed the right of administration till the matter was decided, but this Henry IV. would not brook so near his borders and those of the Spanish Netherlands. He placed himself at the head of an alliance against the Austro-Spanish House, and in this, in 1610, he was joined by England, the United Provinces, Protestant Germany, and Savoy. The death knell of the House of Austria might have sounded with this formidable alliance, but for the crime which deprived France of her great king and ruler. Three French armies had been organised ; and one of them, directed by Maurice of Nassau, achieved the capture of Jülich from the Imperialist party. Rudolf was harassed by his revolted subjects, and had, in 1608, to make over to his brother Matthias, who subsequently became emperor, the government of Austria and Hungary, and finally of Bohemia, and freedom of worship was established. The death of Henry IV., however, caused the withdrawal of France and England

from their policy of opposition to the House of Austria, the Cleves-Jülich question was settled in 1614, and for a few years there was outward peace in Germany, whatever discontent might be simmering below. The Emperor Matthias, being childless, wished to appoint as his successor Ferdinand of Styria, who had an heir to follow him. The hereditary succession easily found approval, and Hungary assented to the arrangement. By strategy, the estates of Bohemia were also brought to acknowledge Ferdinand's succession by hereditary right. This, however, was hardly done before the Protestant nobility realised that they had signed away their birthright, and, finding protest unavailing, they played a bold game, made their way to the palace of Prague in 1618, and seizing the regents, threw them from the window. This brings us to the commencement of the Thirty Years' War.

Meanwhile the death of Henry, which had saved the Austro-Spanish House, had caused a time of misery in France under the regency of the Queen Mother, Marie de Medici. During Descartes' boyhood, the good done by the late king was in great measure undone; many of the troops were disbanded, and negotiations with Spain secretly set on foot. The Spanish marriages, when Madame of France married the King of Spain's son, and the young King of France the Infanta of Spain, were celebrated with the usual festivities; and it was at these festivities that Descartes' absence caused so much astonishment to his friends. Marie's rule was of the worst; she was guided by foreign adventurers, such as the Maréchal d'Ancre, whom she raised to this high position on her own initiative, and in spite of every remonstrance. The marriages were accomplished, but Louis soon refused to be longer governed by aliens and intruders. He was declared of age in 1614, and in 1617, after a rising of the nobles, the Maréchal was called on to surrender at the entrance to the Louvre, and on refusing, was shot.

Now Descartes, as Baillet tells us, did not wish to enlist with the nobles, who were fighting ostensibly

against foreign domination, and apparently against the State: the warfare seemed neither interesting nor very glorious, and as service in his country, and amongst internal and largely personal dissensions, did not promise the adventures and the interest that he craved, he decided to leave his country and seek service with another still in alliance with his own. His decision was fully made when the death of the Maréchal took place, and difficulties of service might have been removed, but Descartes' resolution was not changed; his own country presented to him few attractions compared with her allies abroad, and in common with many others of the young French nobility, he volunteered for service with Prince Maurice of Nassau in Holland, to serve his apprenticeship in war. Early in May 1617, he left his native land, and made directly for Brabant, there to see the world as he could not do at home.

At this time, peace nominally reigned with Spain; but, in spite of this fact, Maurice had his army gathered together, and, considering that it could not be kept in fighting order unless it had wherewith to exercise itself he kept it in motion, and in constant preparation for eventualities. Maurice, Prince of Orange, had a distinguished career, and was considered one of the most skilful generals of his time. He was son of William the Silent, was born in 1567, and after his father's assassination, was elected Stadtholder in the provinces of Holland, Zealand, and Utrecht. Gradually, he and his English allies wrested from the Spaniards many of the cities in the Netherlands still remaining in their hands, till in 1609 Spain was compelled to acknowledge the United Provinces as a free republic. From this time, however, dissensions arose amongst the Orange party itself, divided as it was between the Gomarists and the Remonstrants or Arminians, and it was not till 1621 that the first mentioned achieved the victory, and war was resumed with Spain. When Descartes joined it, the army was disposed along the frontiers, and more especially near Breda, which had been taken from Spain in 1590, and which was considered the special possession

of the house of Nassau, although unincorporated with the United Provinces. Here Descartes seems to have passed two years in a manner as strange as ever a so-called warrior did. It is difficult to imagine a young man, deep in scientific study, living in a camp of rough and dissipated soldiers, many of them mercenaries who had, doubtless, been fighting a battle of freedom, but to whom the battle counted more than the end that was achieved. The Prince who ruled them may, indeed, have acted as an attraction to the student. Only second in gifts of leadership to his father, the great William the Silent, Maurice, with all his faults, was a figure of quite exceptional interest. Not only was he master of all forms of practical generalship, but he was also a student, and to him his profession meant a thorough study of the art of war, of engineering, fortification, the invention and use of various war-like engines, all of which caused him to make a study of mathematics and other kindred subjects. Possibly he had a personal attraction for the young recruit, in virtue of his ability and scientific mind, but more likely the charm was that which rested on the soldier of liberty, who carried on so nobly the traditions of a brave and honoured father, lost to him by the hand of an assassin, while yet a fifteen-year-old boy. But if we are to judge by letters of a later date, Descartes had no enthusiasm. He speaks of his soldiering impulses as though they were due to a temporary heating of the liver which passed away with time. We may, however, be allowed to suppose that some further motive served to keep the lad with companions who could not surely be congenial spirits, even in the case of those who had the best qualities of the soldiers of the time. Descartes never quite identified himself with his fellows : for example, he never deigned to receive a soldier's pay, and thereby, in the estimation of the time, to place himself in a subordinate position. In that free-and-easy camp life he preferred to preserve his independence, and the only money he received as matter of form he preserved throughout his life in evidence of his early occupation.

Why he kept to a profession he afterwards affected to despise, it is difficult to say: on the one hand, however, we know that in accepting the profession of arms, Descartes was but following the usual course for a young man who had the inclination to travel, and on the other, at this time at least, he had leisure for the work that interested him most. Prince Maurice, too, attracted around him quite a number of scientific men—mathematicians and the like—hence the young student was far from being cut off from congenial companionship. But he saw enough both of the wars and of the warriors of his time thoroughly to dislike them both, and he even went so far as to hesitate in giving the profession a place amongst other honourable occupations, considering how much idleness and libertinage reigned in its midst.

Idleness, at least, was not Descartes' chief sin: every spare moment was filled with its special study. Much has been said of our hero's courage and bravery in the field, but so far that courage had no trial. Breda was still in the possession of Maurice, and it was not till some time after Descartes left, in 1625, that Spinola once more regained it for the domination of Spain, after a long and wearisome siege. At this date peace reigned, and the quiet life was only broken by visits from mathematicians and engineers, to see those who were carrying on their work. In this way, Descartes came to know the learned Isaac Beeckman of Middelberg, Principal of the College of Dort, not far off. Beeckman seems frequently to have visited the engineers in Maurice's service, and above all, his professional mathematicians Jacque Aleaume, a pupil of Vieta, and Stevin.*

At this time Holland was the scene of extraordinary material and intellectual activity. Her ships were seen everywhere, her commerce was immense, and she was allowed to be pre-eminent in agriculture as well as trade. But her achievements in science and industry were equally remarkable: the first optical instruments

* Millet, *Descartes avant* 1637, p. 54.

came from Holland, as also did the pendulum clock; the art of printing became what it was in the time of Plantin and the Elzevirs. Nothing gives us a better idea of the intellectual atmosphere of the Dutch towns than the fact that in the small town of Breda it was considered a reasonable thing to post up on the walls a mathematical problem, as a sort of challenge to the *savants* of the place. This was actually what some unknown person did, and not only so, but it appears to have caused the liveliest interest to all passers-by. Amongst these last was René Descartes, not long since arrived, and quite unfamiliar with the tongue in which it was written. He at once asked what was causing so much notice, and hearing that it was a mathematical puzzle drawn up by one who was desirous thereby of making himself famous, he begged his immediate neighbour in this country of learning to state to him in Latin or in French the substance of the problem. The man so addressed was quite willing to state the matter in Latin, but on the condition that his questioner should on his side provide the solution of the problem, with the difficulty of which he was fully acquainted. Descartes, instead of turning away as he expected, accepted the offer with confidence, and so much struck was he by this conduct on the part of a young soldier who had evidently just joined, that he gave him his name and address, so that he might bring him the solution of the problem if he succeeded in accomplishing his object. Descartes saw that the name given was that of the famous Beeckman: he returned to his lodgings, applied himself to the problem, and was not long in discovering the solution. Beeckman's surprise may be imagined when he received the young soldier with his demonstration clearly written out, but his surprise increased when he conversed with him on the subject which interested both so deeply, and found him in many ways more advanced than he was himself in the subject that he taught. He now begged for the honour of his friendship, at the same time offering his own. Descartes gladly assented to his proposal to

correspond, and this connection was carried on until Beeckman's death about twenty years subsequently; there was, indeed, one serious interruption to the good relationship, as we shall see.

This was the time when the Protestant party in Holland was divided into two contending factions—the Orange party, who favoured the Gomarists, representing orthodox Calvinism, and the Arminians, who found their chief supporters in aristocratic republicans, like Olden Barneveldt. This dispute wholly engrossed the energies of Maurice and his army.

Descartes, had he been as anxious to see active service as his chief, might have seen fit to follow him in all his wanderings; but he preferred remaining quietly at Breda, whether because he had absorbed himself in study and in converse with his learned friends, or whether from some other reasons, we do not know. His biographer gives him the benefit of the doubt, and suggests that he was possibly unwilling to take arms against Barneveldt, or that he did not wish to associate himself with the quarrels of a faith he did not share, and in whose dissensions he could have no real interest. At anyrate, this quiet time at Breda was that in which he first began to write, and the first work which has come to us in finished form is his treatise upon Music, which he wrote in Latin, after the manner of the day. The work was undertaken on the solicitation of some unknown friend, most probably Beeckman, for this gave rise to the quarrel which arose between them. In 1629, we find Descartes complaining to his friend Mersenne of someone who had been boasting that ten years before he was Descartes' master; and in a later letter he states that he could have no further dealings with one who boasted of his writings, and was both ignorant of music and of other things. Beeckman had obtained the little treatise given him to read on strict seal of secrecy: somehow or other a defective copy was obtained and circulated, causing its author extreme mortification. However, Baillet goes on to tell us that, mutilated as it was,

instead of damaging his reputation, it attracted the notice of the mathematicians of the day, more especially as it was written by a young man only twenty-two years of age.* Then it was that Beeckman's duplicity (for it seems certain it was he) would appear to have come in: he knew that Descartes had ceased to interest himself in the subject, and if he did not actually pass off the manuscript as his own, which, indeed, he seems to have tried to do, he at least boldly asserted that Descartes had written it under his direction. The indignation of the real author when he heard through Mersenne and others of what Beeckman was about, was unbounded, and he wrote him such a letter as must have stung him to the quick. If a friendly letter failed, Descartes warned him that he would have publicly to discard him.

The *Compendium Musicæ* was, as we have seen, written when the author was very young, and it was not intended for publication. Beeckman at length returned the original manuscript, after the copies had been made, and directly after Descartes' death the treatise was published, and shortly afterwards translated into English and French, the latter work being undertaken by Père Poisson, and accompanied by explanatory notes. He imagined that this was but the basis of a further developed work; but for this theory we have no ground. In writing of it, Descartes describes it as imperfect, and as having defective portions, explicable enough when we remember that it was written in the tumult of an army where ignorance and indolence abounded, and where the writer was distracted by other thoughts and occupations: he therefore desires that it should be preserved as strictly private. The subject was one of which men then knew little. Of course, the art of counterpoint had been understood for long, but just when it was carried to perfection, as the sixteenth century closed, a new school of harmony was arising, and madrigals were taking their place beside the old church counterpoint. This was likewise the time when the

* Baillet, vol. i., p. 46.

Florentine Academy first introduced dramatic music with its accompanying recitative, and when enormous progress was being made in instrumentation. It is then no wonder that the science of harmony enlisted the interests of Descartes, though so far as we can gather, it was rather from a mathematical point of view than an æsthetic: whether he had much real appreciation of music we cannot tell. He would not appear to have possessed a very sensitive ear, from the difficulty which he says he experienced in distinguishing the octave and the fifth. In this "imperfect treatise," which was to be but a token of affection to the friend to whom it was dedicated, and which was to be kept in the "recesses of his cabinet," we have music treated as a science of mathematical proportions, which proportions, when adhered to, give pleasurable sensations.* He goes on to explain what is meant by time, pitch, harmonies, and discords, explaining clearly so far as he went the methods of composition, and the reasons why particular progressions must be adhered to. We cannot help wondering whether the author himself played any instrument. In his *Pensées* he explains how to touch a mandoline with mathematical precision, as though he had personally made the endeavour to produce his notes, and in Paris he had studied and listened to the secular music just come into vogue; the French grand opera had not as yet arisen.

About this time, besides the *Treatise on Music*, Descartes composed various fragmentary works whose titles are enumerated in the inventory found by Chanut after his death.† These were as follows—(1) *Some Considerations on the Sciences*, (2) a paper on *Algebra*, (3) his reflections, called *Democritica* (possibly on physics),

* He discovered also what has since been demonstrated, that the frequency of vibration of a string of given tension and density varies inversely with its length. (Millet, *Descartes avant* 1637, p. 59.) The organ had always a fascination for Descartes, who says in one of his letters that he considers it equal to the harp of David for chasing evil spirits away.

† Baillet, vol. i., p. 50.

(4) observations, entitled *Experimenta*, in which he describes his adventures on the coast of Friesland, (5) a treatise begun under the name of *Præambula: Initium sapientiæ timor Domini* (which might be moral rules), and another called (6) *Olympica*, which appears to have been written later than the rest, and only begun in 1619 after leaving Holland. These fragments are for the most part lost, and their loss is an important one to all who try to write about their author; for, although they may not have had any outstanding merits of their own, they would have thrown much light upon the mental development of the young scholar. The most important of the fragments appears to have been the first in the list—the *Mathematical Studies*, which was also called the *Parnassus*, and of which thirty-six pages were extant in Baillet's time. The date, 1st January 1619, was placed at the head, and it may have been written at that time, or the date may have merely indicated the time at which Descartes commenced to use the book as a record of his reflections. We do not know how these papers disappeared; though Descartes himself certainly burned some papers before his death. Some of his fragmentary manuscripts, and more especially one entitled *Cogitationes Privatæ*, or *Pensées*, written in 1619, have, however, been recovered by M. Foucher de Careil from the Library at Hanover. These papers were evidently copied by Leibnitz, who, Baillet tells us, saw the original papers of Clerselier at Paris, and had at one time thought of publishing them. The *Pensées** are interesting from the fact that they represent Descartes' early reflections, and preceded the Discourse on Method. They are, however, quite disjointed and incomplete, being probably odd leaves collected after the shipwreck on the Seine. The first recorded of his reflections (most of which are in Latin) is characteristic:—"As an actor puts on a mask in order that the colour of his visage may not be seen, so I who am about to mount upon the stage of that world of which I have as yet been a spectator only: I appear masked upon the

* Named by Leibnitz, *Cogitationes Privatæ.*

scene." We can fancy this strange youth's outlook upon the world in which he was to play so great a part. He seemed *in* without being *of* it, always wishing to experience and watch, rather than to act his part. He goes on to foreshadow the discovery of his life—the rules by which he found his actions guided—and to anticipate the Discourse which was to follow. That his state of mind was almost morbid, is surely evidenced by the view he takes of evil: he calls it a malady of the soul more difficult to diagnose than a malady of the body. The body, he tells us, is often in perfect health, but "the soul is healthy never."

Millet points out from the mathematical portion of the *Cogitationes*, that, in discussing the velocity of falling bodies, Descartes was clearly not acquainted with the discoveries of Galileo or his practical demonstration on the leaning tower of Pisa thirty years before.* Doubtless the Jesuit Fathers did not teach the doctrines of one whom they would fain ignore, and René was brought up in ignorance of what should have been to him a well-known fact. Descartes also asserts that the resistance of the air would increase with the velocity of the falling body until a moment arrived when there would be no further increase. This error he himself corrects later on. There are other questions, some put by Beeckman, which show the direction taken by his studies in these early days at Breda. He considers the nature of certain curves, the reason that frozen water expands; he writes of needles so fine that they are said to penetrate silver coins and swim, and of the invention of geometric compasses which had been brought to wonderful perfection and which reappear later on in his *Geometry*. The book throughout is youthful and unfinished: we can discern a mind of immense activity and originality, conditioned by the vague and erroneous conceptions implanted by the science of the day. There are curious practical suggestions mingled with the rest: he speaks of the qualities of ink, of convenient methods known to him of transporting pictures,

* Millet's *Descartes avant* 1637, p. 105; *Œuvres inédites*, p. 16.

of painting the dials of clocks, of measuring plans—all of which seem to have interested him. But we also see what is far more interesting—the germs of his mechanical explanations of natural phenomena exemplified in theories of refraction which he afterwards works out. He does not, however, apply his mathematical interpretations so thoroughly as later on. Matter is not yet inert, but endued with an "active principle, love, charity and harmony." He describes a curious magnetised automaton in the form of a statue, not mentioned in any later writings; and what is more striking is, that he tells us that the absolute regularity of the actions of animals makes us suspect that they are not possessed of free-will, thereby giving us a premonition of his theory of the automatism of brutes. This theory he appears to have developed in a treatise which is lost, but which Baillet tells us of, named *Thaumantis Regia* (the Palace of Marvels), of which we know practically nothing.* Evidently his sentiments on mind in animals, of which we afterwards hear so much, were of very early origin, dating even from a time before he quite realised that to allow animals thought would upset his system. Doubtless, however, that theory was working in his mind and influencing his views of life and nature.

Yet another youthful work like the last mentioned, not seen by Clerselier but mentioned by Baillet, is now completely lost. This is the *Studium Bonæ Mentis*, considerations regarding our desire for knowledge and capacity for acquiring it—a sort of criticism of knowledge addressed to a friend who might be Mersenne. There seems to have been a considerable number of notebooks with scraps on algebra, mathematics, the nature of metals, plants, and animals, detached thoughts on the soul and on the whole universe. It was to these *cahiers* that Descartes turned, as he himself tells in his letters, when he was composing his more important treatises. Next to the *Method*, the *Studium Bonæ Mentis* must have been the most helpful of Descartes'

* Baillet, vol. i., p. 52.

works to a biographer. From Baillet's quotations we find that he dealt with his education at La Flèche and the rest of his early life, told of how he passed through a period of doubt, and how he cast aside his books, resolving like his forefather to eat of the fruit of the tree of knowledge, and saying, with another great man:

> "Grau, theurer Freund, ist alle Theorie,
> Und grün des Lebens goldener Baum."

Then came an account of his travels and his dealings with the Rosicrucians. Probably the book was finished on his return to Paris.

In the *Cogitationes* is recorded that strange remark which has caused so much speculation among Descartes' biographers: "It was in the year 1620 that I first began to understand the basis of the marvellous invention. In November 1619, I had a dream in which I recited the poem of Ausonius, beginning thus—

> 'What road shall I pursue in life?'
> 'Quod vitæ sectabor iter?'" . . .*

He refers us to the *Olympica*, a fragment consisting, Baillet tells us, of a dozen pages which contained on its margin a remark in Descartes' handwriting, but of a later date, to this effect, "XI. Novembris 1620, cœpi intelligere fundamentum inventi mirabilis." In the text there is written, "X Novembris 1619, cum plenus forem Enthousiasmo et mirabilis scientiæ fundamenta reperirem, etc."† The *Olympica* likewise tells us that, on the 10th of November 1619, having gone to bed filled with enthusiasm, and entirely occupied with the thought that he had that day found the basis of true science, he had certain mysterious dreams that are recounted at some length. The interpretation was that the Spirit of Truth wished to open to him

* Ausonius, *Edyllia*, xv.

† There is some confusion about these dates. The 10th November 1620 was, as Mahaffy points out, two days after the battle of Prague, and is unlikely to be the occasion of a great discovery; probably November 1619 was the correct date, but of course there may have been two separate experiences. (Baillet, vol. i., p. 51.)

the treasures of all the sciences. The last dream was pleasant, and promised well for his future life; the others were regarded as rebukes for the past life which, though excellent in the eyes of men, was different in the eyes of God. Remorse was typified in the second dream, and finally the Spirit of Truth descended on him. Descartes' biographer rather unkindly suggests (though without accepting the explanation) that the day in question was the eve of St Martin, when at that time deep drinking was in vogue.* But he himself assures us that he had spent the whole day in great sobriety, and had drunk no wine for three whole months. He believed that it was his genius that excited in him this "enthusiasm," which caused his brain to become heated some days before he dreamt. We have only to recollect his mental condition at the time, to cease from marvelling that he should be affected by any psychological influence. He had been deep in study and in contemplation. His past life had not satisfied him, and he sought for something, he knew not what, that would bring him peace of mind and rest of body. Both were overwrought and working at high tension. It was doubtless at this time, too, that it dawned upon him that if clear knowledge was to be obtained, it must be by the application of mathematical methods. Many, indeed, believe that the "marvellous invention" was simply the discovery, by the application of algebra to geometry, of the generality of the laws of mathematics. As Chanut says in his Epitaph, he hoped by comparing the mysteries of nature with the laws of mathematics, to find that the same key would open the secrets of both.

In those days, at least, there was hardly a great man who was to influence the thought of his time who did not pass through a period of conversion, whether this took the form of a change in the religious or the moral point of view. To this rule Descartes, though not strongly influenced on the religious side, like Pascal and the Port Royalists, was no exception. November 10th,

* Baillet, vol. i., p. 85.

1619, was a momentous day to him: it was as though the injunction were then given to him as it has so often been given before and since, "Choose ye this day whom ye will serve." It was the turning-point in Descartes' life—the time when, probably disgusted with the internal warfare of the country in which he dwelt, and the religious struggles which brought no good end to pass but only future weakness, and in which he could have no real interest, he determined to make the search for Truth the object of his life. He had dreamt of malign winds blowing him first from the Church or College to join a party which did not seem to suffer from the blast; then he dreamed of an alarming storm at which he was able to look with the spirit of a scientist, and which thus ceased to trouble him. Finally he dreamed of the poem of the Latin poet Ausonius, beginning, "Is and Is not," which he understood as meaning truth and falsehood in human knowledge.* We can see a certain line of thought running through these dreams, but we should imagine the interpretation to be rationalistic rather than religious. The Truth was evidently to be the Truth of Reason rather than of Revelation. Still, allowing for Baillet's prejudices in favour of a religious explanation, there must have been a religious element present, and evidently Descartes was smitten with remorse for sins of which his fellow-men knew nothing. His biographer tells how deeply he was troubled, and how he prayed God to make known to him His will and to lead him into the ways of Truth. He turned in his trouble, like so many of his faith, to Mary, the Mother of God, and formed the vow on 23rd September 1620, to make a pilgrimage to Our Lady of Loretto; and so great was his zeal, that he promised that when in Venice he would make his way to the holy shrine on foot, or, if physically unable, would perform the journey with the utmost reverence and humility. The "Thoughts" transcribed by Leibnitz likewise agree in this matter with Baillet's account taken from the *Olympica*.† Des-

* Ausonius, *Edyllia*, xvii.

† *Œuvres inédites*, p. 13 (F. de Careil's edition).

cartes intended to start upon his journey in November 1620, but for reasons that we do not know, the journey was put off, though the vow was duly executed some years later.

This state of mind lasted for some days, and the resolutions then come to remained firm after he regained his normal calm. The winter began to pass, and Descartes occupied himself with writing, very probably the treatise above mentioned. By this time he had left the service of Prince Maurice and gone to Germany, and finally to Neuberg on the Danube, where his mental crisis appears to have taken place. But we must now explain how these changes came about, and how the course of history influenced his career.

CHAPTER II

SEEING THE WORLD, 1619-1621

René Descartes volunteered with the intention of fighting against Spain, and we should imagine him considerably disgusted at finding that the country was entirely occupied with internal feuds between two religious bodies—Calvinists and Arminians—in whose respective tenets he could have no interest. He was tired of the life, and somewhat disillusioned probably about his hero: he heard of what was being done upon a large scale in Germany, and he determined to make his way to that country. In Germany he could join his co-religionists in fighting against the Protestants, but first of all he wished to see what was always to him of enormous interest, a "spectacle" on a prodigious scale. The election and coronation of an emperor would satisfy that wish, and in July 1619, the young soldier took leave of his friends at Breda, and made his way by Mæstricht to Aix-la-Chapelle, from whence, finding the preparations for the impending coronation all in progress, he proceeded to Mayence, where he heard that the electors had been summoned to Frankfort, there to elect their emperor.

On the 20th of March 1619, the Emperor Matthias had passed away, and now all eyes were turned on Ferdinand, upon whom depended the fate of the Austrian Empire. In the early summer Ferdinand's case seemed almost hopeless. He was urged on all hands to recognise the Bohemian revolution, and the establishment of a Protestant government in Austria, and threatened

with the consequences of refusal. But at the last moment help came, and Ferdinand was saved. Now he had made his way to Frankfort, there to endeavour to procure his election as Emperor. How this election would turn seemed very doubtful. The Elector Palatine and the Margrave of Brandenburg might have united in supporting John George of Saxony and the Protestant interest, but mutual jealousies as usual reigned, the Protestants were without a candidate, and Ferdinand was unanimously elected. As the electors passed from the hall to the church where he was publicly to be acclaimed, the news arrived that the Elector Palatine had been elected King of Bohemia at Prague.

Descartes must have experienced all the intense excitement of the election of an emperor, on which so much depended. We can imagine what the scene would be with the electors, Catholic and Protestant, arriving personally, or by deputy, in all their state. The ecclesiastical electors came, we are told, in person, the Protestants represented by their ambassadors. If Descartes longed for experiences of the world, surely this scene of intrigue, hopes, fears, disappointments, and success would gratify his aspirations. He, at least, would be satisfied with the result.

The election was on the 28th of August, and that very day messengers were despatched to Aix-la-Chapelle and Nüremberg, in order to procure the crown and sceptre, so that the coronation might take place as speedily as possible. The 9th of September was fixed upon as a suitable date.

Baillet states that, though Descartes could not be present at the ceremony of election, attendance at which was strictly limited to those in the electors' suite, he certainly succeeded in witnessing the coronation, however little entitled so to do.* Strangers had been turned out of the town during the election, and previous to the later ceremony the gates of the town were closed and carefully guarded: Descartes, however, in his biographer's belief, was safely ensconced inside. The

* Baillet, vol. i., p. 55.

inhabitants were ranged along the route of the procession to the church, where the ecclesiastical electors had assumed their episcopal array, and at eight in the morning, Ferdinand was there crowned and led away on horseback, preceded by a long procession of officers and gentlemen. The ceremony itself was associated with all the pomp and ceremony that the Catholic Church knows so well how to bestow upon its functions; Baillet, in the account he gives of it, omits no detail. Descartes, he says, was curious, once for all, to see this pompous exhibition carried out by the most famous actors of the day; and truly, could he have realised how the land was to be bathed in blood for so many long years under the leadership of many of the notabilities who in person or by deputy played their part that day at Frankfort, he might in reason have felt deeply moved. Ferdinand took his solemn oaths, well knowing what they meant to him.

After the subsequent gaieties had ended and the ambassadors had left, Descartes found himself confronted with the question of what his next step was to be. He had no special call in one direction rather than another, excepting his desire for seeing service under the best conditions possible. His own country did not involve itself in the long war for many years after this, but her hands were fully occupied with the rising of the Huguenots. Descartes' prejudices might be against taking part in another internal religious war; and in addition to this, he must have been impressed by the ceremonies he had been witnessing, and made more disposed to lend his assistance to the allies of the newly crowned emperor. Maximilian, Duke of Bavaria, was chief of the great Catholic League, an able statesman and the ablest and most determined leader of his party, venerated by his own religionists and respected by his opponents; therefore, we do not wonder that his was the army Descartes preferred to join, even although he did not know the enemy he was to be called upon to fight. Ten days before Ferdinand was crowned at Frankfort he was deposed at Prague; and on August

27th, Frederick, the Elector Palatine, was elected in his place. Frederick's difficulties now began, for, weak and vacillating as he was, he had to make the decision whether he should accept the proferred crown or not. He was troubled with fears that he might lose the prize, while yet he had scruples about accepting it: was he justified in interfering with an anointed king? Already he had refused to be a rival candidate for the Imperial crown. If the war became not only a war between the Imperial House and one of its dependencies, but a religious war as well, what would be the attitude of Spain and of the Pope? Above all, what would be the attitude of his father-in-law, James of England? Surely he would assist to save Protestantism from destruction, to procure a crown for his daughter's husband. But no real help seemed to promise from that quarter, since platitudes and classical quotations did not assist the cause. James was bent on obtaining the hand of the Infanta for his son, and he pledged himself to frustrate the rebellious Protestant designs and make his son-in-law do likewise. Spain delighted James's heart by suggesting that he should mediate between the parties. The decision was a momentous one, and men trembled for the results—the results that followed so disastrously and that took the form of a huge religious war which was to devastate the land. His best friends advised Frederick to refuse the tempting offer, but at length he took the fatal step. On 25th September 1619, he notified his acceptance, and was crowned in state at Prague on the 4th November subsequently.

What followed may be anticipated. Frederick had acted on his own responsibility, and in disregard of the action of his ambassadors at the coronation at Frankfort. His father-in-law was indignant at the premature step, which might cause him the loss of his much-longed-for marriage with Spain. He was to give his deliverance on careful study of the constitution, and his impetuous daughter and her husband had taken the matter into their own hands, though, truth to tell, his vacillation had been trying enough. The Protestant Union met in

conclave at Nüremberg, and agreed to defend the Elector's hereditary possessions if they were attacked during his absence in Bohemia. The Catholic party met likewise, and made it clear that the question was wholly one of religion. On the side of the League Maximilian of Bavaria took the lead; his army was placed at its service, and he was promised the Electoral hat which Frederick should be made to vacate.

It was at this time, when Maximilian was raising his troops to fight for the Catholic cause, that Descartes joined his army at Neuberg on the Danube; and this is the notable scene of his spiritual awakening. The army was in winter quarters, and he seems to have thoroughly enjoyed the tranquil time, and to have devoted himself to serious study and thought. How he kept his reflections to himself and kept working out his problems and developing his *Method* in a rough camp of soldiers, where he could have neither much quiet nor peace of mind, is strange indeed. Baillet always tells us that the reason he was so little distracted was that he was quite free of prejudice regarding the issues in dispute, and took no interest in them beyond that of an onlooker. But this it is scarcely possible entirely to believe: surely there must have been some strong impelling power to make a young man of three-and-twenty devote his time to living the life of a soldier in a climate as cold and bleak as that which he encountered on the Danube. We must, of course, recollect that war was everywhere in the air, and that one who did not fight was an exception to the rule. The conditions of Descartes' life were also very largely mitigated by his circumstances. For his time was by no means given up to his outside work; he was evidently living at his own expense in a house, and he appears to have been in so far his own master, since he speaks of his "warm room," where he was able to occupy himself with his own thoughts undisturbed. It was here that he laid his great plans for the future, that he determined to abjure the prejudices of the schools; it was here that he first projected in his mind that New Philosophy which was

to work so great a change on speculative thought throughout all time.

The young soldier seems to have had some interest in the country through which he passed, and even to have thought of deserting the quiet of Neuberg for the turmoil of Bohemia, where the battle was continually raging. However, the prospect of constant service at the beginning of the year kept him where he was. His expectations were not disappointed.

Frederick's prospects were distinctly darkening. Saxony and Lower Austria had made their submission to the Emperor. Holland was occupied in defending itself against Spain, and even Bethlem Gabor, the able but drunken Prince of Transylvania, had deserted his cause. The leadership of Maximilian on the opposing side had been of infinite assistance also to the League. All he undertook was carefully planned and certain to succeed. His health was bad and his appearance mean, but his actions were ever firm and resolute. Descartes was fortunate in his military leader.

The Duke first marched to Donauörth to keep watch on his opponents, whilst waiting the result of an embassy sent to France from the Emperor, in the hope of obtaining some assistance. France was at this time less alarmed at the preponderance of Austria than at the prospect of the increased strength of the Calvinists, should Frederick be successful in Bohemia, especially as she was embroiled in conflict with the Huguenots at home, who might be encouraged by his success. A commission was sent to Ulm, with instructions to make a satisfactory arrangement between the two parties, and declare the Duke of Bavaria head of the Catholic League. The unexpected result of this mediation was, that the union abandoned all interference in Bohemia, and confined its aid to Frederick to his Palatine territories. This decision, come to in fear of Maximilian and the Spanish army, sealed his fate.

Descartes found little society to his mind in his winter quarters, and when he heard of the probable arrival of the French ambassadors at Ulm in Swabia

on the Danube, he prepared to precede them there in order to give himself once more the pleasure of meeting his fellow-countrymen, for volunteers appear to have had in such matters complete liberty of action. On the 6th of June 1620, the ambassadors arrived at Ulm. They were followed by the Dukes of Wurtemberg and Anspach, the Elector Frederick's deputies, and those of the Protestant princes of Bohemia and Bavaria. To this mingled party the Duc d'Angoulême discoursed in conciliatory language.

Perhaps these negotiations at Ulm were as interesting as any of the other public functions at which Descartes had been present. While the Duke was speaking peace and mutual consideration, the Bavarian troops were pouring in from the Rhine, and an army of 25,000 men crossed the Danube at Donauörth, and awaited the results of the deliberations. The Protestant troops, 15,000 strong, emerged from Ulm, and encamped within speaking distance of the others. Baillet does not know whether Descartes felt constrained to join the army, but naively thinks it probable that he did not do so, but remained in the town, where there were numbers of French gentlemen of a similar age, and where he doubtless was having an agreeable and entertaining time. While these two armies were confronting one another so closely that the slightest accident would have caused a general rupture, the treaty was concluded, after four weeks' consideration, being signed by Maximilian on the one hand, and the Margrave of Anspach on the other: this was on 3rd July 1620. Peace was to be established as before the troubles began, and the affairs of Bohemia were to be left to the Elector and Ferdinand to settle between themselves. But it was easier to declare peace than to establish it. The Protestants had been brought into signing a treaty so unfavourable to their cause in Bohemia, no doubt owing to the firmness of Maximilian and the fear of the Imperial army from the Netherlands, but Frederick remained resolute as before.

The ambassadors, however, departed for Vienna

on the 6th of July, well contented with the results they had achieved. The Duke of Bavaria withdrew his troops from Swabia to place them at the service of the Emperor in Austria, while the Protestant troops under Anspach, made their way in an opposite direction in order to defend the Palatinate against Spinola and the Netherland forces. But the young philosopher did not join the fighters, rather remaining at Ulm in order to make himself the better acquainted with the place and people. He was now living as an ordinary civilian, and at once he began to make acquaintance with those who had the reputation of knowing something of philosophy and mathematics. He visited, amongst others, John Faulhaber, a mathematician who lived in Ulm, and who was very hospitable and friendly. With him he had an adventure of a character somewhat similar to that with Beeckman. Faulhaber, seeing that the young man had some knowledge of mathematics, asked him whether he had heard anything of geometrical analysis. From the deliberate nature of the answer given him, even though it was affirmative, Faulhaber suspected he knew nothing of it; and thinking to rebuke his presumption, he asked whether he could undertake to solve a problem. Descartes at once undertook the task with confidence, and Faulhaber derided the young man, quoting some mocking line from Plautus. Descartes was piqued, and challenged him to put some questions. Faulhaber had just published a book on arithmetic and algebra, and set questions upon these subjects. Then, seeing the replies were satisfactory, he went on to those more difficult, and when he had at length realised that he was dealing with a practical mathematician, he took him into his study and showed him his book, recently completed; the problems seemed to present little difficulty to young Descartes, who began to discuss the methods in which such problems should be dealt with, until Faulhaber felt that, instead of being the instructor, he must be the pupil. A Nüremberg mathematician, by name Peter Roten, published the answers to Faulhaber's

questions, and added new ones on his own part, which he wished Faulhaber to solve. Descartes kindly assisted him with these, and thereby added to his already considerable reputation as a mathematician. Other geometric wonders are reported of Descartes at this time, possibly without much foundation. His mathematical discoveries were, however, greatly occupying his attention, and as these were probably more especially the application of algebraic methods to geometric problems, no doubt he would be bent on applying them on every possible opportunity. But above all, he thought that, by similar means, he could apply mathematical methods to nature in all her aspects.* No wonder he was in a state of mental excitement, never knowing what discovery might next be made, nor what far-reaching consequences might be derived from the discoveries already reached. We do not feel surprised that he left the army for a time to have a little quiet for consideration, both respecting his *Method*, which was being slowly but surely developed, and about another matter which was raising his curiosity to the highest pitch, and of which we will speak later. There was a treatise, too, for which, in February of 1620, he was thinking of seeking a publisher; but probably, on further consideration, he came to the conclusion it was immature. At any rate, his time must have been well occupied at this period when he was "seeing the world," between thinking, writing, and generally observing what was taking place around him. For most men it would have been sufficient to have lived through a time of such turmoil and excitement without the added mental strain of working out abstruse mathematical problems. But it seems as though there are some to whom a life of constant outside interest has the effect of stimulating rather than exhausting the mental faculties. We can imagine the young student, after discussing the war in all its aspects, the qualities of its leaders, and the alternative policies, retiring from a world where strife

* Baillet, vol. i., p. 68.

and discord reigned, to shut himself up with his reflections—the reflections which we call abstract, but which were to prove the guiding forces of the world when the causes for which men struggled as for their lives had come to be regarded as barren and unprofitable.

In September 1620, the young man made his way to Bavaria once more, in order to proceed to Vienna, there to see the court, and join the suite of the French ambassadors, who were going on to Hungary to confer with Bethlem Gabor, once Frederick's ally, but now, like the others, threatening to desert him. We do not know whether Descartes had really left the army: we may well imagine that he had tired of the life, and had been anxious for a change; but why, in that case, should he, as appears, once more join the camp? Baillet says that one suggestion was that he might have given up his military life in disgust at Maximilian's conduct in marching against the Elector Palatine. But if, as we are told, he were present at the battle of Prague, it is likely that he returned from Vienna after seeing something of court life, once more to join the army of the Bavarian Duke.

The Duke had been successful in reducing the Protestants to submission to the Emperor. After so doing he proceeded to Bohemia, uniting his army to that of the troops from the low countries under Boucquoi. The forces complete now amounted to 50,000 men, and all the Bohemian troops which were disposed over Lower Austria and Moravia were driven before them, the towns being either taken by storm or terrified into capitulation: Descartes, with certain other young Frenchmen of station, witnessed these transactions, if they did not play their part in them. Doubtless, it was considered for some the best method of learning their profession to study the methods of the famous Boucquoi. To us it would seem a grim and fearful lesson; and surely Descartes must have felt that his studies of mankind had led him far enough.

The elector's fortunes were at a low ebb indeed.

His army amounted but to 30,000 men, commanded and partially supplied by the brave Prince Christian of Anhalt. The Elector of Saxony, jealous of Frederick's acceptance of the crown and the leadership of the Lutheran party, seeing that he himself was Calvinist, cut off all hope of succour from Lusatia or Silesia. Austria had submitted, and even the Bohemians were disunited and without courage. The Bavarian army pressed on, since the season was advanced, and they hoped to effect a surprise which would bring about a victory. Frederick did his utmost to rally his dispirited troops by himself appearing in the camp, and reviving the courage of his nobles. The Bohemians, who had decided to act on the defensive, had begun to entrench themselves on the White Mountain near Prague—so excellent a position strategically, that the Duke and Boucquoi hesitated before giving battle; this, however, they finally did, and in less than an hour this decisive action was over. At first it had seemed doubtful how the battle would end, but the Bavarian charge was invincible, and the victory was gained with a loss to the Bohemians of 4000 men. Frederick was summoned from Prague to hear of the disaster; he asked for a cessation of hostilities, and was given eight hours, during which he, with his wife and family and chief officers, made his escape under cover of the night. The retreat was, to say the least, pusillanimous, for something might yet have been accomplished with the remaining forces; but Frederick had little confidence in his supporters. He fled to Breslau, but soon removed from thence to the court of the Elector of Brandenburg, and finally to Holland, where he resided at the Hague under the protection of Prince Maurice. It is strange to think that of those who precipitately fled was the little Princess Elisabeth, just four years old, who was destined to be the friend and correspondent of Descartes in after years. She and her brother Charles Louis were left at Brandenburg, under their grandmother's care, while their parents made their way to Holland.

As for the Bavarians, they entered the town of

Prague, and sang the Te Deum; the estates did homage without conditions, and Silesia and Moravia followed in their steps. Three months' grace was given, and then followed the punishment of the offenders. Immense numbers of Calvinists suffered on the gallows, and their estates were confiscated. Protestant preachers were banished, and in time the Protestant religion was no more tolerated. Ferdinand had gained his end, and for a moment it seemed as though peace were in view. Tilly was left to govern Prague, and the Duke of Bavaria left the town on the 18th of December, to pass the rest of the winter at Munich.

Whether Descartes fought at the battle of Prague or not we do not know, but the six weeks during which the army was in the town afforded a valuable opportunity to him—six weeks which were occupied by the officers and soldiers very differently. So completely did the young man appear to be able to dissociate himself from his surroundings, that we can almost believe that this really was the date alluded to in his notes as being that on which he began to understand his *inventum mirabile*—a statement which has been discredited owing to the time being one when all men's minds, one would suppose, must have been occupied very differently than in speculation. Prague, to Descartes, was famous as the place where Tycho Brahe had spent his latter days, and where, after being forced to quit his famous observatory in the island on the Sound by the persecution of the nobles, he found a haven of rest under Rudolf II. He had died in 1601, nineteen years before, but his memory had been kept green through Kepler, his pupil and assistant. We cannot wonder that Descartes was keenly interested in the life of the great astronomer who migrated from Denmark with his family. We should like to believe that he had an opportunity of talking with his relations and descendants, as has been said by some of his biographers. But Baillet tells us that, from investigations made, this is most unlikely. Tycho had brought his many valuable instruments from Denmark to within a few miles of

Prague, where a new Uranienburg was to have been built; then they were taken to the Imperial palace, and finally bought from his heirs by Rudolf, who allowed no one of any sort to see them—not even Kepler, the astronomer royal, who complained bitterly of the restriction. Then came the troubles, and the Elector's army, knowing they were private property, broke and destroyed the collection. This occurred just a year before Descartes' arrival. The only thing that was saved was the great brass celestial globe, but that was not discovered till later; after many wanderings it was finally deposited at Copenhagen.

We have followed the fortunes of our philosopher-soldier, or, as we should rather say, soldier-philosopher, so far as regards his outward actions, and we may judge from his own account of it, what he was thinking and writing about during these eventful years which represented the critical period in his life. Descartes, as he tells us in the *Method*—that most wonderful autobiography which relates to us so little of the "facts" of its writer's life, but so much of its actual events—was learning all this time the science of sciences, the knowledge of himself, which is all to which the wisest man can, after all, attain. It was perhaps hardly true that he had abandoned the study of letters in favour of the "book of the world," but he had done his best to throw himself into practical affairs, so that by this means he might escape the pit-fall into which men of letters too often fell, of allowing their speculations to carry them beyond the limits of common-sense, and of giving free scope to vanity. If Truth were to be found in mixing with the world, Descartes was bent on finding it; but, as he himself realised, he was a stranger in the world into which he had entered—a stranger in a mask which concealed his true expression. He learned, what all men learn in time, that there is no sphere of life in which the contradictions of mankind can be got rid of; everywhere alike is there error and deception: if we accept what is set before us by custom and example, we shall certainly go wrong. Truth must be sought for from

the beginning: the Book of the World but sends us back to ourselves. Descartes' first reflections that winter at Neuberg, when free from cares and passions he remained the whole day in his well-warmed room, gave the colour to the remainder of his life. The student, undistracted by society that interested him, devoted his whole attention to his thoughts, and his thoughts directed the course of his later speculations. What, then, was the lesson learned? The first conclusion the young man came to was this: that seldom does a work on which many persons have been employed attain to the same perfection as that which has been carried out by one single directing mind: this we see clearly in buildings, or in cities which have grown from villages. And with nations the case is similar: civilisation is a growth which has largely come about through the necessity bred of suffering, while the direction of some wise legislation or the ordinances of God must be incomparably superior. Learning has suffered in this way; the sciences have gradually been drawn far from the truth which a sensible man, using his natural and unprejudiced judgment, would gather from his own experience. In childhood we are guided by those whose instructions are conflicting and not always for the best; and how can they be as correct as those which would have proceeded from our Reason had it been from the beginning mature, and had we allowed ourselves to be guided by it. As in the modern view of education, we do not seek so much to "put into" the brain of the child, as to "draw out" what is already there, though in a latent state.

But Descartes does not propose to adopt so revolutionary an idea as that a clean sweep should be made of all that our inherited learning and civilisation have brought to us, declaring that the world must make a new commencement. He takes the simile of a town which is not built afresh, but in which each private individual sees to his own house being renewed. So, he adds, "as for the opinions which, up to that time, I had embraced, I thought I could not do better than

resolve at once to sweep them wholly away, that I might afterwards be in a position to admit either others more correct, or even perhaps the same when they had undergone the scrutiny of Reason. I firmly believed that in this way I should much better succeed in the conduct of my life, than if I built only upon old foundations, and leant upon principles which in my youth I had taken on trust." * Large bodies, if overthrown, are with difficulty set up again: with them it is dangerous to meddle, but with the individual it is different: "I have never contemplated anything higher than the reformation of my own opinions, basing them on a foundation wholly my own." And the attempt is, above all, not to be made indiscriminately by everyone. "The single design to strip oneself of all past beliefs is one that ought not to be taken by everyone. The majority of men is composed of two classes, for neither of which would this be at all a befitting resolution: in the *first* place, of those who, with more than a due confidence in their own powers, are precipitate in their judgments, and want the patience requisite for orderly and circumspect thinking; whence it happens, that if men of this class once take the liberty to doubt of their accustomed opinions, and quit the beaten highway, they will never be able to tread the bye-way that would lead them by a shorter course, and will lose themselves and continue to wander for life: in the *second* place, of those who, possessed of sufficient sense or modesty to determine that there are others who excel them in the power of discriminating between truth and error, and by whom they may be instructed, ought rather to content themselves with the opinions of such, than trust to their own Reason for something better." † Then Descartes tells us the benefit which has come to him from learning, not from one school or master, but from the world. He would probably have placed himself with the latter of these classes had he not seen the world, and even in college life, learned that there is no opinion, however

* *Method*, pp. 13, 14. † *Ibid.*, p. 15; (Veitch, p. 16).

absurd, that has not been maintained by some philosopher, and that those who hold these strange opinions are as rational as we. Our opinions are dependent largely on the customs of our country, and even an opinion on any matter of difficulty which is almost unanimously held, is not necessarily true, for the truth is more likely to be found by one individual than by many. He himself felt that there was no one on whom he could pin his faith with confidence, therefore he was constrained to use his reason. Then carefully and deliberately, "like one walking alone and in the dark," he set about his difficult task, not dismissing summarily any of the opinions that had crept into his belief without having been introduced by Reason, but carefully satisfying himself of the general nature of the task he was undertaking "to ascertain the true method by which to arrive at the knowledge of whatever lay within the compass of my powers." *

This bit of autobiography, so famous in French Literature, is perhaps more interesting than any other portion of Descartes' writings. It presents him to us grown to the stature of a man, and fully conscious of himself and of his powers, ready to grasp the world as his own, and yet having already learned the lesson of caution in his actual conclusions. All his philosophy seems to centre round the antithesis, present to all who think of such things at all, between "Opinion" on the one hand, and "Truth" upon the other. Where does the one end, or the other begin, if indeed it does begin at all? Is there, then, a Method that can help us in that all-important discovery, or must we remain of the mind of Xenophanes the Eleatic, that—

> " No man at any time knew clearly . . .
> For what he thinks to speak most perfectly
> He knows that not at all ; his own opinion cleaves to all."

Descartes held that this was not so ; he believed that there was a Truth which might be reached, did we but

* *Method*, p. 17.

look for her aright, and clear our minds from the prejudices that had accumulated in ages past. Perhaps others, if not he, might find that the task was not so simple as he assumed; but at least he made a new and vigorous start upon the way which so many before and since have followed—none of them entirely succeeding in their quest, yet none of those who sought sincerely being entirely disappointed. Descartes' external life was just his mental experiences in concrete form; he sought for truth in abstract study, in outward things, in the world and all it teaches, and then finally by study once more formulated his conclusions, and reasoned out his experience.

Thus, in the beginning of his life, this scholar of the Jesuits, who knew so well how to adapt the teaching of his Method to the capacities of his scholars, and yet who kept his end so faithfully before him, began with the doctrines of his masters. He studied Logic only until he had become assured that Logic would teach him nothing more than he already knew, and would never add to knowledge. We seem to hear the voice of his successor Pascal, in his Provincial Letters, in the words, "On examination I found that, as for Logic, its syllogisms and the majority of its other precepts are of avail rather in the communication of what we already know, or even as the Art of Lully, in speaking without judgment of things of which we are ignorant, than in the investigation of the unknown; and although this science contains, indeed, a number of correct and very excellent precepts, there are, nevertheless, so many others, and these either injurious or superfluous, mingled with the former, that it is almost quite as difficult to effect a severance of the true from the false, as it is to extract a Diana or a Minerva from a rough block of marble."* This meant that a great break had been already made with the teaching of his childhood; it meant that, instead of inquiring into the way in which knowledge is communicated, we try to extend our knowledge, to learn to distinguish Truth from

* *Method*, p. 17; (Veitch, p. 18).

Falsehood as the Jesuits never did. To them, Truth was fixed and immovable; there was no question of discovering something fresh in what could only be revealed through some authoritative means. The Logic of the schools should in their view teach us all we want to know.

But now we must return to the events in Descartes' life. We left him after the battle of Prague in 1620. He remained in Prague until December, and then took up his winter quarters with a portion of the Duke of Bavaria's troops left in the extreme south of Bohemia. At this time a new and strange influence had come within his life. In that wonderfully productive winter spent with the Bavarian troops, while active operations were impossible, Descartes heard much of what was going on in the literary and scientific world. Amongst other things, he heard of that strange brotherhood of which we have so often read and yet of which we know so little—the Order of the Rosicrucians. They, it was said, taught a new wisdom, the hitherto undiscovered science. This was enough to excite Descartes' interest: Germany was thoroughly aroused; something had been discovered which was to be kept to the few initiated ones. The same Descartes who was in the habit of disdaining the work of others, began to think he had been precipitate in his judgments. Here was he searching for the Truth patiently and with difficulty, and there were men who declared the way had been opened to them. If these were simple imposters, then it was the duty of any honest man to expose their imposition; but if on the issue which to him was all-important, they had found any light, then, as he told his friend, how despicable would it be in him to disdain to be taught anything out of which he might obtain new knowledge. He made it his duty to discover a member of this learned body, in order to discuss the matter with him and subsequently settle his own conclusions.*

* The treatise which Descartes specially dedicates to the Order, is that which was written in 1619-20 and never published, the *Polybii*

Descartes' efforts to lay hold of this ever-vanishing society were in vain. He was doubtless keenly interested and excited about what might be an interesting development of the doctrines of Paracelsus; but it was, of course, quite contrary to his newly-formed principles to accept what he could not put clearly before his mind, and really experience. Later on, as we shall see, he was somewhat ashamed of his youthful enthusiasm, and declared that, far from having belonged to the mysterious Order, he knew nothing of it, but possibly Père Mersenne may have influenced his judgment. At any rate, having made up his mind that nothing was to be gained from this society, he found his difficulties as great as ever, and, as we have seen, he threw himself into active life in order to take refuge from himself.

After the battle of Prague, he once more shouldered his musket, or perhaps his pike, and decided again to join the Bavarian army—not the first soldier of his day who had become such to drive away the more persistent troubles of the mind. It was not long before he joined the troops of Boucquoi in Hungary. Frederick's cause was not as yet entirely lost. Mansfeld fought bravely for him, and his father-in-law, who had been so cold when the Bohemian cause was at stake, aroused himself when he saw that the empire was threatening the Electorate as well, and sent supplies. Transylvania and Hungary gave most important help to the outcast king. The cessation of hostilities between Bethlem Gabor and the Emperor was followed by this old enemy of Austria over-

cosmopolitani Thesaurus mathematicus, which "sets forth the true means of solving this science, and in which it is demonstrated that nothing further can be supplied by the human mind"; "it is specially designed to relieve the pains of those who, entangled in the Gordian knot of the sciences, uselessly waste the oil of their genius." It is dedicated to all learned men, and more especially to the illustrious Brethren of the Rosicrucian Order in Germany. This may have been the treatise that in his journal he promises, if he can obtain sufficient books, and if it seems worthy of publication, on 23rd September 1620, though why the date should be thus fixed we do not know. Probably when the time came he did not consider it "worthy," and now all is lost excepting the simple title.

running Hungary once more, and calling himself its king. Boucquoi was forced to evacuate Bohemia and make his way to Hungary. Descartes had heard much of Hungary and its troubles, and had met Hungarians with the Imperial troops, therefore he was anxious to visit the country and take his place in the Imperial army. He joined Count Boucquoi in Moravia (where he was occupied in reducing the towns which were favourable to Frederick), offering himself to him as a volunteer at the end of March 1621, while the general was awaiting the results of negotiations between Gabor and the estates of Hungary and the Emperor. Gabor had taken the oath of fidelity to the Imperial House, but, being in league with Frederick's party in Bohemia, he entered Hungary with a large army, carrying all before him. Pressburg soon capitulated, Gabor was declared king, and religious toleration was established. War had been resumed, but it was during some temporary negotiations which ended in nothing that Descartes appeared upon the scene. He accompanied, Baillet tells us, the army of 22,000 men to the siege of Pressburg, where Gabor had left a garrison, having himself retired in possession of his crown. The town held out till May; and after it submitted, other towns in turn were successfully attacked.*

The town of Neuhaüsel, however, was not to be so easily captured: it had an opening upon a river, and large forces came to its succour from Bethlem Gabor and others; still, things were favourable to the Imperialists, until an engagement took place with a party of Hungarian horsemen, when the brave Count Boucquoi, deserted by his men, lost his life after defending himself, almost single-handed, to the last. The Imperial forces remained a few days longer for appearance' sake, and then, completely dispirited at the loss of their leader, retired during the night of 27th July upon Pressburg once more.

This unaccustomed defeat seems to have completed the dislike which Descartes had formed for the pro-

* Baillet, vol. i., p. 95.

fession that he had temporarily adopted. No doubt his experiences in this campaign must have been trying, and its inglorious close must have tried him most of all. It has been asserted that the young philosopher distinguished himself in his capacity as soldier, but Baillet characteristically discredits the tale. In his view, Descartes' mind was set on higher things than military distinction, and he considers that he would himself have told us had any such distinction been acquired. He relinquished the military service at this time, and never in serious warfare carried a musket more: the four years of experience had taught him much: he had grown into a man, and a man who had knowledge of the world and of his fellow-men: he had learned much of the motives which actuate these men in their relations with one another—much that he could not learn in a Jesuit school, nor in the solitude of his study. And now the "heat of youth" being, in his view, passed, he decides that the time has come for a new and very different line of life.

CHAPTER III

FURTHER TRAVELS, 1621-23

Although Descartes had once and for all abandoned the military profession, he had no idea of returning immediately to his country. War was being waged with the Huguenots—a war with which he may have had but little sympathy—the plague had been and was still desolating Paris; but, besides all this, his desire for travel was still far from satisfied. He had seen men, and he now desired to see countries; he would no longer follow the camp, but start forth by himself to make his discoveries. By so doing, he possibly laid himself open to censure; long after this, his enemy, Voetius, the Dutch theologian, under an assumed name, made a virulent attack upon him, accusing him, among other things, of quitting the army in disgust, because he saw no prospect of rising to a post of honour. The absurdity of this accusation is manifest, since Descartes was but a volunteer, with no ambition after a commission, nor, if we may judge by his later utterances, much enthusiasm for his profession. But the accusation seems to have stung none the less. He was seeking now for what so far he had not succeeded in finding. He had thought that what the philosophers, with their various systems and contradictory opinions, had failed to reach, might be at last discovered in the active life of the field, where, instead of giving themselves over to meditation, men set themselves to act. Surely, in that way, must they obtain a more definite and certain standard of truth and falsehood; shams

must be shown up and reality revealed, when the false veneering of conventional life is removed. But here, too, he found that the same uncertainty and wavering were discovered. Men were guided by a hundred motives rather than the simple intentions of honest hearts. Varieties amongst men in active life were as great as amongst those books which had once been so deeply conned; and who is to say which will direct us most surely? The World's Book is a great one, and it tells us many things which puzzle us. We can but spell out little bits here and there, even those of us who can read it best.

Descartes started off on his new task of seeking to know something of men and places, fresh from the turmoil and distraction of war, and he did so with one lesson, at least, well learned. For he had learned, as he tells us, to believe nothing simply on the evidence of those by whom it was commonly received, and thus to get rid of much real hindrance in taking to heart the lessons Reason has to teach.

He left Hungary in July 1621, probably with a carriage, and accompanied by servants, and made his way through Moravia to Silesia, where he seems to have remained at Breslau. The country must have been desolated by the Elector's war, and probably presented a depressing spectacle. Baillet thinks Descartes must have been present at the assembly of the States at Breslau, and soon after that (in November), the ceremony of administering the oath of allegiance to the Emperor there took place. He wished to see something of North Germany, and skirting Poland, he entered Pomerania. Here he arrived in autumn, and having visited the shores of the Baltic, he passed from Stettin to Brandenburg, whose Elector had just returned from receiving homage as King of Poland. Then he went on to the Duchy of Mecklenburg and into Holstein, from which some of his biographers erroneously think he went to Denmark—in reality, this was a later expedition.*

* Baillet, vol. i., p. 102.

Having made up his mind to go to Holland by water, Descartes dismissed his horses and servants, retaining only a single valet. He embarked somewhere on the Elbe, on a vessel which was chartered to take him to Eastern Friesland, since he had rather a strange desire to visit at leisure the sea-coasts of Germany—a dreary enough expedition, one would say, in a small boat in winter. Having investigated the Eastern Friesland, he was anxious to see the Western, and in order to be more free, he took a small boat for himself, meaning to make the short journey across the isthmus of the Ems from Emden. The expedition, however, proved very nearly fatal to him. His boatmen were sailors of the most barbarous description possible, and, being once well on his way, he discovered them to be unprincipled scoundrels. As he talked French with his valet, the sailors took him to be a foreign merchant, probably voyaging for trade purposes, and possessing large sums of money. They judged that, being a stranger not known in the country, he would not be missed if thrown overboard, and, on the old principle that dead men tell no tales, they decided on this step, especially as he seemed an inexperienced quiet young man, who would make but little resistance. Their plans were freely discussed, for they considered that their passenger would not understand their language.

Suddenly, however, the young man rose; his countenance assumed an aspect of severity, he drew his sword from its scabbard, spoke to the men in their own tongue, and threatened to stab them on the slightest provocation. The effect was instantaneous and marvellous: the courage of their would-be victim cowed them altogether, and the miserable men willingly submitted to conducting Descartes where he would. The incident was striking, and proved, if we wanted proof, that much had been learnt during these years of wandering and warfare: the art of managing men is not the least important art a young man can learn, and in pure physical courage he certainly cannot have been lacking

How he was acquainted with the dialect of the country, probably spoken by the men, we do not know: we may, however, believe that he had a talent for picking up languages and *patois* as he went.

Descartes did not stay long in Frisia, where there was not much to be seen but cultivated lands and marshes; he soon passed on to Holland—the country that was going to be for so long a time his home—and here he passed a good part of the winter. Curiously enough, at the Hague there were three little courts being carried on at once—that of the States-General, where the affairs of the Republic were dealt with; that of the Prince of Orange, under whom Descartes had served; and finally, that of the exiled and attractive Queen of Bohemia, the Electress Palatine, who was surrounded by sympathetic friends endeavouring to console her for her past glories and present poverty. Descartes' life became, as we shall see, strangely bound up with the exiled royal family, the same family which not long before he had assisted in dethroning.

At this time the twelve years' truce made between the States and Spain in 1609, had but a few months expired, and war had once more been declared. Spinola, with his forces, was actually besieging the town of Juliers. L'Ecluse was attacked by Borgia, the governor of the citadel of Antwerp. Descartes, who had wished to avoid warfare, awaited at the Hague the issue of these sieges until January 1622. Spinola took the town and castle of Juliers, but Borgia was forced to raise that of l'Ecluse, after losing the greater part of his army. Early in February, Descartes felt at liberty to quit Holland, from which he made his way to the Spanish Netherlands, and there felt curious to see something of another court—that of the Infanta Isabella at Brussels. This court must have been one of the strangest Descartes ever visited; for Isabella, who had become the widow of the Archduke Albert the previous year, governed her country as a Nun of the Order of St Clare, and though gentle and humane

to her own subjects, she carried on the war against the Netherlands with the greatest vigour, under the title of "Governess." She was much respected by friends and enemies alike for her combination of firmness and amiability, and deeply regretted on her death, which took place in 1632.

Descartes' visit was but of a few days' duration: he wished once more to return to France. Hearing, however, that the plague, which for the two past years had been desolating Paris, was not yet passed, and as it was his father whom he specially wished to visit, he journeyed across France to Rouen, from which place he went on to Rennes in Brittany, arriving there about the middle of March 1622. Nine years of absence had changed the lad of seventeen into a man of six-and-twenty — a man of experience and knowledge of mankind, to whom the little world of Rennes might seem dull and quiet enough. His father had become a man of some importance in the local parlement. He was already one of the leading senior members, and next year was to become its "Doyen." Possibly these matters did not seem of the same importance to the son as to the father, or possibly the home life with a stepmother and half-brother and sister whom he hardly knew, did not present the interest it might have done. His elder brother had been made a councillor by his father's efforts, and his full sister was already married. At anyrate, a few weeks after his arrival, his father deemed it right to put René in possession of his property, so far as it had come to him from his mother, thus making him feel free to follow out his bent. The brother and sister had already received the two-thirds which fell to their share. René's part consisted of three small properties, viz., those of Perron, Grand-Maison and Le Marchais, besides a house in the town of Poitiers, and some acres of arable land. The whole of the property was situated in Poitou, and its new owner was naturally anxious to see it before settling what to do with it. In May he left for Poitou, and he spent most of the summer partly at Châtellerault and

partly at Poitiers. Then he once more joined his father, who, during the parliamentary recess, spent much of his time at the property of his second wife, Chavagnes near Nantes.*

It does not appear that the young man obtained much assistance from his relatives as regards his future life. Very likely the advice offered might be that of living on his little property, or obtaining some safe berth in connection with the parlement, like his brother, and such suggestions would not appeal to one who meditated doing great things in the world. But life in his father's house without occupation was not to be borne; therefore, when Lent of the following year came round, the young man made his way to Paris. The restricted interests and narrow life of the provinces must have chafed him, and he desired to see his friends in the great world once again, and learn the last political news and what was being said and done in the world of letters. At this time we must recollect that Brittany was far removed from Paris, and Paris was the centre of a literary life which seldom has been equalled. A glorious age was opening—the age of Corneille, Molière of the Précieux and the Précieuses, of Balzac and Voiture, of Mme. de Rambouillet and Mlle. de Scudéry—the age of Richelieu and the Academy so soon to be inaugurated. After the Treaty of Angoulême, which made peace in 1620 between Louis XIII. and his mother and the nobles, the Huguenots arose and made a bold effort after independence. But this rising, which threw France into a blaze, seemed to have roused in the young king all the best qualities he possessed. He confirmed the Edict of Nantes, marched against the enemy, and although the Huguenots held out stoutly, and seemed practically invincible, they at length were forced to come to terms, thus accepting the inevitable. By the Peace of Montpellier, signed on 19th October 1622, civil order was restored, and although religious toleration was accorded, a step was taken towards destroy-

* The first communication extant from René Descartes is one to his eldest brother, on business matters, dated 3rd April 1622.

ing the political influence of the Huguenots. The king and his mother had also come to terms, and what was more important than all, the great Richelieu was taken into the royal council. Descartes made his appearance in Paris on the dawn of a new era for France.

The events which had been taking place in Germany were naturally of excessive interest in France, which had not so far decided on the policy to be pursued. The transference of the Palatine Electorate from Frederick to Maximilian of Bavaria, which had taken place in February 1623, meant a transference of power from Protestantism to Catholicism, which was likely to be fraught with the most important consequences, and France would soon have to decide as to whether she was to interfere in the struggle that was inevitable, and, if so, at what point. Now all were curious for information, and therefore Descartes, fresh from his experiences in Germany and Holland, was naturally a *persona grata*, especially as he could formulate his views upon the origin of the troubles, as well as simply recount his personal experiences. But just when his popularity would have been at the highest, he was informed that, incredible as it seemed to them, a report had spread abroad amongst his friends that he had become a member of the secret Order of the Rosicrucians which had just become the subject of talk in Paris. His interest in it we have seen, but how far he had become actually involved with the Order, of course, we cannot tell: his biographer is very certain that he never was a member, and there is nothing in his writings to make one think he was. So far as we can say, at no time did his interest carry him beyond the bounds of reason. Descartes himself was inclined to think that the report was circulated by some enemy, who had known through his letters from Germany of his connection with the Order, and had exaggerated this connection in order that his reputation might suffer. Secret societies at that time had an evil reputation, and this society had first been heard of under another name from that by

which it had been known in Germany, where it had not been ill thought of. Unfortunately for those who were supposed to support it, it came to be known in France at the same time as a Spanish society, the Alumbrados or Illuminati. This entirely prejudged the Order in the eyes of the critical Parisians: the members were turned into ridicule, and called the Invisibles; they were introduced into the novels of the time, and farces were acted in which they played a leading *rôle*. When Descartes arrived in Paris, he was greeted on the Pont Neuf by songs concerning the supposed brotherhood. A wonderful bill was posted on the street by some joker more daring than the rest, to this effect: "We, the deputies of the supreme college of the Brethren of the Rose-cross, inhabit this town in visible form and invisible form. . . . We teach and demonstrate with neither books nor signs every language in the countries which we inhabit." It was really believed that a great body of these "Invisibles" had taken up their abode in Paris; it was said that of thirty-six deputies who had been sent from the head of the society to every part of Europe, six had come to France, and that, having advertised their arrival, they were lodged in the Marais du Temple. Yet another placard soon appeared, saying that if any person wished to see them from mere curiosity, the wish would not be gratified. But if they really wished to join the confraternity, they who could read the thought would show them the truth of their promises.*

* The origin of this strange Order is as obscure as that of most secret societies. The society ascribed to itself immense antiquity, although its origin, and even its name, seems wrapped in mystery. Whether it owed its commencement to a certain Christian Rosencreutz who appears to have been mythical, or to the symbolical signification of its name, Ros or Rosa and Crux, it is impossible to say. What we do feel sure of is, that it was a development from the mysticism which prevailed in Germany at the close of the sixteenth century. A great body of alchemists, magicians, and what not, followed upon the great Paracelsus, seeking, after what they took to be his principles, to discover the secret of the transmutation of metals, and the mystery of the universal medicine and the philosopher's stone. Some adopted less material views

We can imagine how Paris, relieved to be at rest from war and pestilence, and once more gaining its wonted light-heartedness, would excite itself over this imaginary invasion. We can picture how, in those ever-celebrated *salons*, the arguments for and against the brotherhood would be discussed by brilliant women and witty men. The opportunity was too good a one to be lost, and any unfortunate stranger coming to Paris from the country of its origin would at once be hailed as an imaginary apostle. Of course, in Descartes' case, there was circumstantial evidence, for was he not learned in strange and curious knowledge, and had he not confessed in letters written to friends how he had been attracted by this mysterious society? We may also add, was he not a striking-looking youth of good family and interesting history? All the necessary conditions were present for causing a *furore*, and it soon arose at the unfortunate René Descartes' expense. Most serious of all, his good friend Father Mersenne of the Minims had been distressed by the news concerning him. It was a real relief to him to see this friend once more: they had been separated for nine years, three of which the Father passed at the convent of Nevers, teaching philosophy and theology. In 1619, he was, however, summoned to Paris, in order to be Conventuel in the convent near the Palais Royal, where he remained till death. It was here that Descartes found him preparing the first volume of the commentaries on Genesis which he dedicated to the first and newly-made Archbishop of Paris. The connection between Genesis and the Rosicrucians might seem remote, but for Mersenne it existed, and Descartes appeared upon the scene just in

and a more exalted aim; differences of opinions occurred, and associations were formed for the discussion of the secret sciences. The Rosicrucians, so far as we can tell that they existed, were a theosophical sect, having no connection with Templars or Freemasons. They claimed to be a Christian Order, and at the same time a learned sect. This is how they attracted men such as Thomas Vaughan and Robert Fludd in England (the latter was on this account attacked by Père Mersenne), and Descartes himself in France.

time to give the writer the information he required; although he declared his ignorance of the Order, it was clear that at the least he knew as much as could be known. Mersenne's indignation with the new doctrines was unbounded. If his writings give a true account of Rosicrucianism, we cannot cease to wonder that Descartes should have been attracted by it, for, instead of the clear and distinct views that he craved for, we have what seem to us strange and incomprehensible signs and symbols, literal interpretations of poetic imagery, and a theosophy of a most confused description. Probably, however, his interpretation of the Order was very different from its earlier expositions, and probably, also, the secret societies that sprang up at this time were just so many protests against the grossness and materialism of the life then carried on. Society in France was as coarse as we should have expected it to be under the influence of Henry IV., and a Spanish regency: it was also, on the whole, an irreligious society as well. We can, therefore, understand how the idea of a body of reforming tendency might have struck the imaginations of the Parisians, and ensured a temporary interest.

Even after he had cleared himself of the strange suspicions that had fallen upon him, the great world of Paris did not satisfy the young philosopher any more than it had done years before. It was a "great world" that he had stepped into—and one into which a man of wit and genius could obtain admission even without the added qualification possessed by Descartes, of social standing. It might, indeed, have carried away many a man more mature in years than he, and we almost wonder that, considering the life he had been leading, he was not more entranced of it. He felt, however, the longing for a vocation which would satisfy his ambitions, and he still possessed that passionate desire to find the Truth, which could not be satisfied in a Parisian *salon*, however brilliant. The précieuses talked about what he was trying to discover; they sought points of view, while he was aiming at the substance. He saw his

friends all settled in some profession, or more often in some post or sinecure, which would give them occupation and remuneration for the remainder of their lives. But this was no inducement to young Descartes to follow suit; he felt he must have quietude, and, above all, the opportunity for thinking and not alone for acting. He appears at this time to have taken a dislike to mathematics, studied as an abstract science for itself, and without any view to its utility in the solution of other problems. He had ceased to study arithmetic for the last three years, and he had to refresh his knowledge when he wished to work out some problems. We have seen how, during his travels, he made a study of geometry, but already he was finding it also unprofitable. The fact appeared to be that, in studying both arithmetic and geometry (in his mind the key to all the other sciences), he had been dissatisfied with the books from which he studied. He found, as many who have been unintelligently instructed find in the present day, that he had only got mechanical methods of arriving at results, instead of reasons. He could not wonder at those who put aside these studies in disgust, either as puerile and vain, or else as difficult and obscure. He considered it vain to apply oneself to imaginary numbers and figures, as if that were sufficient in itself: new difficulties could with the greatest difficulty be resolved by them. The old mathematics, regarded as a necessary preliminary to philosophic study, must have been a very different science, however insufficient. It was based on certain elementary truths imposed by nature on the human mind, though later on overlaid with error. The writings of Pappus and Diophantes, though of less antiquity, Descartes believed bore traces of this lost science, and he considered that men have tried to revive it under the "barbaric name" of algebra, which, by clearing away the multitude of forms and figures, brings about that clearness and facility which ought to characterise true mathematics. This last Descartes takes to be Science as a whole—not arithmetic and geometry alone, but also astronomy, music, optics, and mechanics, and all

the sciences which seek to investigate, and comprehend order and measure wherever they appear. Hence, in his *Rules for the Direction of the Mind*, Descartes urges men to study this science, which embraces all the objects to which the other sciences apply themselves, and which, though despised by many, is in reality most worthy of study.

Thus, for the time being, Descartes turned from the geometry and arithmetic of the day in disappointment. In the century preceding, the study of mathematics had been introduced into Italy, and numerous treatises, translations of the works of ancient geometers and commentaries on those works, appeared. Vieta made immense improvements in algebra by introducing the use of letters of the alphabet to stand for known quantities, and he also advanced the theory of equation, as did Harriot, an Englishman, while the Scottish Napier invented logarithms. But though great activity was being manifested on mathematical lines, it was left to Descartes himself to make the greatest stride of all, by allowing the mathematician to pass beyond the few regular curved lines, whose properties were known, and by the application of algebra to geometry, to overleap the narrow bounds within which it had hitherto been confined. But this is to anticipate.

In the meantime, geometry and physics were alike abandoned as unprofitable, and another line of study—that of morals—was adopted, as being the most practical and important to which the young man could possibly apply himself. The phase, as a phase, does not appear to have been of long duration : it was not long before Descartes returned to his first love, and throughout his life man in his moral relationship is not so often the object of his solicitude, as in his relationship to the world. Clerselier, who should have known, states that morals were constantly the object of his thought : to us, Descartes sometimes seems to look at ethics as a branch of physics which, as he tells Chanut, was most useful in giving a basis for morality.

The young man's stay in Paris was not of long

duration: after a two months' visit, he decided to return to his relatives in Brittany. At Rennes he obtained permission of his father to sell some of his property in Poitou, and then he made his way to Poitiers first, and then to Châtellerault.

June and part of July of 1623 were employed in business arrangements. The estate of Perron, which had come to him from his mother, Descartes sold, as also two small properties or farms and the house at Poitiers. Perron was held in fief from the duchy of Châtellerault. The estate of Perron thus passed from Descartes' hands, but in order to satisfy his relatives, he continued, in his family at least, to call himself by its name. He was now fairly rich, and able to direct his life as he would, independently of the opinions of his friends; as we shall see, he had no idea of vegetating in the provinces, or even of spending a life of gaiety in the metropolis: his views, so far as they were formulated at all, were very different.

CHAPTER IV

ITALY AND PARIS, 1623-1628

YOUNG Descartes was by no means satisfied with the amount of travel he had succeeded in accomplishing. The *Wanderlust* was still upon him, and so early as March 1623, when in Paris, he appears to have written to his brother suggesting a journey to the neighbourhood of the Alps, where the husband of his godmother, who had charge of the commissariat of the troops, had died. Being anxious to depart, he made it a pretext for his journey that he was going to set the affairs of his relative in order, and, if possible, obtain the post of Intendant of the army. All preparations were made, and he was to leave by postchaise, having assured his friends that a voyage of the kind would be of the greatest use in teaching him the management of affairs, giving him further experience of the world, and helping him to form useful habits, adding that "if he did not return richer, at least he would return more capable." * However, either owing to his anxiety to sell his property, or for some other reasons unexplained, he had to delay his journey.

It was thus September 1623 when he really started and made his way to Basle and Switzerland, in order to see something of the country. On this journey, the traveller made a point of seeing as much of nature as he could, paying special attention to animal life, and to the conformation of the land: and this was at a time when such regions of inquiry were unusual. He

* Baillet, vol. i., p. 118.

directed his way to the Grisons, and there became detained while the question of the Valtelline was under debate. The Spaniards, who garrisoned the Milanese, had, in 1622, seized upon the valley of the Valtelline, and obliged Chur, the chief town of the League of the Grisons, to receive an imperial garrison, on the pretext that they wished to protect the Catholics, and secure communications with the Empire, by establishing means of passing troops and stores from the Empire to Milan. The route from the south is through a pass, half-way up the Valtelline, a broad valley which leads into the other valley of the Adige, by which it was easy to pass on by the Brenner into Germany. The possession of the valley was essential to the maintenance of the power of the Hapsburgs in Italy, but it was subject to the League of the Grisons, which had long been under the protection of France, and therefore, when it was interfered with, France had every right to intervene. It was not, however, until two years later, that Richelieu actually took this step, and drove the imperial troops from Chur, and the papal army from the Valtelline.

From the Valtelline the traveller made his way to Tyrol, and then to Venice, after visiting the courts of the Archduke Leopold, brother of the Emperor Ferdinand II., at Innsbrück. Descartes had purposely arranged his plans so that he should reach Venice on Ascension Day, and witness the well-known ceremony of the Espousal of Venice to the Adriatic Sea. Whether the wish to witness another interesting ceremony of a kind entirely new to him, and the natural desire to see the famous republic, attracted him to Venice, or whether it was his old vow of four years ago, after his season of enthusiasm, that lay upon his mind, we do not know; but the fact is clear that now, at last, he made the pilgrimage to Loretto. Baillet merely tells us that doubtless the circumstances under which it was undertaken were "most edifying."* Having, as we suppose, attended to his spiritual affairs, he

* Baillet, vol. i., p. 120.

turned his attention to the temporal, which had been the excuse for his making so long and expensive a journey, but his efforts to procure a post in connection with the army, if ever made in good faith at all, did not succeed. Descartes' next interest was to make his way to Rome, which place he wished to reach after All Saints' Day. Pope Urban VIII. had announced, by a Bull in April 1624, a Jubilee which was to commence on Christmas Eve 1624, and end with the year 1625. The great basilicas of S. John Lateran, S. Peter, S. Paul, and Santa Maria Maggiore, were to be visited by the faithful for thirty consecutive days, and all indulgences were temporarily suspended in order to attract every good churchman, as far as possible, to Rome. Hardly anyone can be present at these great festivals of the church in that city of churches, where the outward acts of religion seem to be the only thought and occupation of thousands of men and women, without a deep impression being left. And if that is so now, when the spiritual power is no longer also a temporal power, and when the great spiritual hierarchy has been shorn of the greater part of its magnificence, and lives in great measure on the memory of glories passed away, what must it have been when Urban of the Barberini, that spiritual prince who never forgot that he was also a temporal prince, and who fortified Rome with ramparts, reigned in uncontrolled power? Descartes, coming as a young man from scenes of a very different kind, accustomed to rude camp life, and naturally susceptible to outside influence, was, for the time being, deeply moved. He had come through motives of curiosity, and he found a population drawn from every part of Catholic Europe, so to speak, upon its knees. Even the rumours of pestilence in and round the then unhealthy town, and the war which raged to the north, did not act as a deterrent to the true sons of the Church. Amongst the pilgrims was Ladislas, Prince and afterwards King of Poland, who had come from Breda and the Spanish Netherlands to

Rome, to be present at the procession of the Pope and Cardinals on Christmas Eve, in the great and hardly completed new basilica of S. Peter's. This was the prince who was the rejected suitor of Princess Elisabeth of Palatine, Descartes' future friend. There were other Catholic princes who had also found their way to the Holy City with motives probably of different sorts, but ostensibly to perform their religious duties. We have seen Descartes' passion for learning something of human nature in all its phases; here was his opportunity all ready to his hand. To him the study of these living men was far more than the sculptures, pictures, and ancient relics of every sort, which form the overpowering interest of Rome to the ordinary traveller. Such things never really had much fascination for Descartes, excepting as they bore upon his present work and thought. His knowledge of the classics was probably but slight; there is no evidence in his writings of a true interest in literature for its own sake. What did interest him, however, was nowhere to be found on a larger scale and in greater variety of character than at a great festival of the Church such as this, in a city crowded with pilgrims of every nationality and class. It is little wonder that he thought that his education in the knowledge of mankind could be carried on better under present conditions than in journeying, as he had some idea of doing, to Sicily and Spain. Just a year before this, Galileo had visited Rome for the third time, after the accession of Urban VIII. to the pontifical chair. The latter was one of the few cardinals who had opposed the decree of 1616, condemning the doctrine of the motion of the earth and ordering Galileo to renounce his opinions. Doubtless the great philosopher expected much from the enlightened Cardinal Barberini, who, indeed, received him most affably and warmly. But it was the same Pope who, nine years later, summoned the old man back to Rome, and forced him, through the Court of the Inquisition, to renounce the truths he had spent his life in learning. Descartes did not see Galileo,

although it seems strange that he did not do so. He might easily have turned aside, like so many other travellers, to visit the famous man who then had reached the zenith of his reputation. In a letter to Mersenne in 1638, Descartes specifically states not only that he never saw Galileo, but also that he had no communication with him, desired nothing from him, and, so far as music goes, had forestalled him.* Baillet thinks that he had actually confused him with his father, who was learned in mathematics and wrote on music. It seems quite incredible that he really took the father for the son, and, so far as his condemnation by the Inquisition was concerned, Descartes was well acquainted with the facts, for, as we shall see, they prevented his publication of his treatise on "the World"; still, he evidently thought that the father's writings on music were the compositions of the son. There seems to have been a strange element in Descartes' character of something not far removed from jealousy, which prevented him from appreciating as they deserved, the writings of other scientific men whom he regarded as his rivals. His criticisms of them are carping and ungenerous, and he seems often to be afraid that the credit due to himself might not be fully or sufficiently awarded.

It was early in spring that Descartes left Rome for France by Tuscany, where he may have visited the court of Duke Ferdinand II. About the time he left, the Pope was sending his cardinal nephew to the court of France, to endeavour to arrange matters as regards the Valtelline. This nephew was interested in the sciences, and when Descartes paid his respects to him, he reciprocated his attention, and a friendship thus arose which was afterwards carried on by presents of books, and other expressions of esteem. Descartes did not wish to travel by sea with the *savants* who accompanied their chief, but preferred to make his way to France by land. When he reached Tuscany he learned that war had been declared between the Republic of

* *Corr.*, vol. ii., pp. 388, 389.

Genoa and the Duke of Savoy, Charles Emmanuel, who was being supported by a French force under the leadership of Lesdiguières. When Descartes reached his camp, Gavi, the Spanish party had been thrown back, and between Tortona and Genoa, was being besieged. It was situated in a place difficult of access, and excellently defended; in spite, however, of almost insuperable difficulties, under the able leadership of the aged Lesdiguières, the place at length capitulated. After this event, Descartes, with his soldier's spirit still burning within him, longed to witness the marvellous progress of the Duke of Savoy's army, which was reducing the whole country to submission. The Genoese and Spaniards afterwards took courage, and once more gathered together their forces. Without waiting to see the final issue, Descartes left the army to go straight to Turin, where, according to his wont, he investigated the system of government which obtained, and visited the court, which was now, however, deserted, owing to the war: he nevertheless succeeded in seeing Christine of France, daughter of Henry IV., and Princess of Piedmont, who had married a few years earlier.

In May the traveller made his way out of Italy by Susa, three years later to be the scene of Louis' and Richelieu's triumph. Here, after all his manifold and very various interests in Italy, and his recent military experiences, the old love of scientific investigation came back to him, and after crossing Mont Cenis, he turned aside to make observations on the height of the surrounding mountains. He likewise tried to discover the cause of thunder, and why it thundered more in summer than in winter. His theory, which is worked out in his book on Meteors, is based on his observations on avalanches, the sound of whose falling reminded him of thunder. He conjectured that the higher clouds, being surrounded by a heated atmosphere, fell upon those beneath, just as did the snow heated by the sun's rays, a theory which at the time, and before thunder was associated with electricity,

seemed probable enough. Other observations were also made by Descartes at this time, more especially those concerning lightning, whirlwinds, etc., and he also seems to have made an endeavour to measure the height of Mont Cenis from two points on the plains of Piedmont by geometric methods. At least, he describes these methods to Mersenne, when the latter was thinking of travelling to Italy, although he does not actually say he adopted them himself. He also warns Mersenne against the climate, from which he must have suffered, for he calls it specially unhealthy for Frenchmen, and states that if one wishes to keep well, one must eat little, although, as he acknowledges, the temptation to exceed would not be so great to one of Père Mersenne's calling as to another. Had it not been for the richness of the food and the warmth, Descartes declares, in 1639, he would have established himself in Italy rather than in Holland, although he believes, in such a case, he would not have been so healthy.*

On quitting Italy, Descartes posted to Poitou in order to hear about certain property which he could not sell before he left, and to tell his godmother of the affairs of her late husband, respecting which he had made it his business to inquire. At Châtellerault, he was urged to purchase the office of Lieutenant-General of the place, but he rejected the suggestion on the ground that he had not sufficient ready money to make the purchase. Friends, however, were eager to assist in helping him to secure a competency, and, as no interest was demanded, he felt obliged to write to his father and consult him while he was at Poitiers. Considering, however, that his father, then in Paris, would think him incapable of fulfilling the duties of the office, since he had hitherto had no profession but that of arms, and seeing that he was now twenty-nine years of age and somewhat old to begin his studies, he decided to follow him to Paris with the object of informing him that he would study with a *procureur*, in order to acquire the necessary knowledge. He started before receiving a reply, and arrived

* *Corr.*, vol. ii., pp. 623, 624.

in Paris early in July, just after his father had left for Brittany. His mission was probably somewhat of a fictitious one; but in any case, on reaching Paris he was easily persuaded to remain, and to leave in abeyance the Lieutenant-Generalship and provincial occupation in any other form.

Parisian life was much more to his mind than that of a provincial official or administrator. The legate sent by the Pope to the King of France had arrived a month before, and Descartes was glad to renew his acquaintance with the cardinal, whom he had known in Rome, and with whom he maintained a friendly intercourse. At this time he must also have heard with some emotion of the fall of Breda, after a nine months' siege undertaken by Spinola, and just two months after Prince Maurice had been succeeded by his brother, Frederick Henry.

Descartes took up his abode with a distant relative and family friend, M. le Vasseur d'Etioles by name, whose son was living when Baillet wrote, and from whom he appears to have heard some details of his life. We are told that Descartes' aims at this time were to avoid affectation and irregularity so far as might be, to hold the most moderate and unexaggerated opinions, and to live simply and without superfluity. His table was sufficient but plain, his servants few, and he was unattended in the streets: his dress was of a "simple green taffeta" such as then was worn, and he carried plumes and sword, merely as "marks of quality with which a gentleman of that day could not dispense." *

But the too long delayed decision as to a future mode of life must now be made, and yet the young man felt he could not make it. He had given much thought to the subject, balanced the various advantages and disadvantages of different callings, and, of course, if poverty had been pressing, or if he had had a wife and family to support, he must finally have made up his mind to submit himself to the demands of the inevitable in making a selection. But as it was, he was free, and

* Baillet, vol. i., p. 131.

none of the professions open commended themselves to his fancy. He preferred to remain as he was, apparently devoid of occupation, and to make Truth and Reason the objects of his attainment, being content with no lesser aims than these afforded. This was not the empty ideal of aspiring youth, but the carefully thought out project of the man, and it was a project which was to be methodically developed by the same system which he had already found so helpful. Baillet tells us that he was master of his passions, and that his former inclination for the gaming-table, and consequent waste of time, had completely passed away; indeed, its reign would seem to have been but short indeed. As to religion, he says he observed its outward practices in common with good Catholics, and he believes the early lessons of La Flèche were not forgotten. Baillet, of course, was always anxious to prove his subject orthodox in his beliefs; he allowed him to be "curious" in mind, but quite free from that "libertinage" which would treat things spiritual in the same way as the things of nature. To say the truth, Descartes was ever far removed from having any desire to break with the beliefs of those around him until forced to do so, and he held it right and proper to conform till reason for dissent was shown. Thus he tells us, whatever doubts and difficulties might assail him as to matters of belief, his life and conduct were directed on sane and rational grounds, unaffected by these doubts. Of course, we need not take the account given us in the *Method* of the manner in which he regulated his conduct as accurate in every detail: it surely was a counsel of perfection to a young man living in Paris, or in the camp, in a century when manners were rough beyond our present conception. But, in any case, he was distinctly seriously minded, and his meditations on the deep things of life must have conduced to making him regard outside things as less real than those of mind; and hence he would seem a strange figure standing aloof from the mirth and bustle of the busy world around him, balancing and weighing, establishing his own conclusions, and

estimating in his mind the motives and impulses of his fellow-men.

Three years were passed by Descartes in Paris, varied only by expeditions into other parts of France. Soon after his arrival he went to the court at Fontainebleau, there to pay his respects to the papal legate, who, though received with all external manifestations of honour, was looked on somewhat coldly so far as his mission regarding the disposal of the Valtelline was concerned. The great Richelieu was now at the helm, and the policy of the aggrandisement of France at the expense both of the Empire and of Spain was once more in force. It was not till the rising of the Huguenots made Richelieu dread a double war—a war at home and another abroad—that he was forced to come to terms with Spain. The royal forces had, to begin with, been successful in their efforts to quell the Huguenot rising, led by the Duc de Rohan and Soubise; but Soubise, with a fleet furnished by the town of La Rochelle, more than once defeated the royal navy before Richelieu finally resolved upon the capture of the place.

Descartes spent the autumn and winter of 1625 in Paris, and the following year, 1626, he paid a visit to his relatives in Brittany and Poitou, along with his friend and relative M. le Vasseur d'Etioles. He had not seen his father for a period of three years, and he wished also to visit his maternal relatives at Poitiers, where his early years were spent. M. le Vasseur, his companion, was asked while there to be present at the reading of a thesis in the Jesuit College, and, in spite of Descartes' already-formulated objections to the scholastic methods of discussion, he gladly accepted the invitation to accompany his friend, and even, as M. le Vasseur tells us, desired to dispute the thesis. He delivered a discourse in Latin of such a nature that the Jesuits were said to be highly pleased.*

On returning to Paris, Descartes took up his abode in the Faubourg St Germain, at the Inn "aux trois chappelets." But he soon found his time was not his

* Baillet, vol. i., p. 136.

own: friends poured in upon him, and his lodgings, instead of being a place of quiet, became a place of meeting. His old friends, Mersenne and Mydorge, of course, were constant in their attendance, but others likewise came to know of the quiet student, who was yet in a manner sociable, and who thoroughly enjoyed, whether he confessed to it or not, quiet chats about the subjects he loved so much. Unfortunately, all these personal details which we should like to know, have been so carefully withheld from us by his biographer, that we should, from his account, imagine the conversation to have been entirely on scientific and philosophic lines; just as in the copies of his letters which he preserved, we have little or nothing that is personal in its nature. But, judging from the character of his friends, and the fact that he was undoubtedly much engaged in reflecting on what afterwards was committed to writing, we cannot but admit that Descartes must have occupied himself in matters strange and unusual for one of his age and fortune. Baillet gives us a list of the friends he made at this time, telling us the qualities and characters of each; and as we come across them constantly in the letters that he wrote, it may be as well to enumerate them here.

To begin with, there was Hardy, with whom in later life he often corresponded, famous for his studies in mathematics and oriental languages, and holding office under the parlement. Hardy had just published *Euclid* in the original Greek, and also translated it into Latin with his own notes. Then there was De Beaune, also a "councillor," though of another district, and likewise a mathematician; and Morin, professor of mathematics at Paris, who helped Descartes greatly in supplying instruments necessary for his work. He carried on a very considerable correspondence with him concerning the nature of light. Père Gibieuf, of the Congregation of the Oratoire (like many of Descartes' friends), and a doctor of the Sorbonne, was another of his intimates; and yet another was Des Argues, whose work in life was to make inventions which might prove of practical value to artisans and

mechanical workers. Baillet says that Descartes specially valued Des Argues' friendship, but we may judge the latter to have been a popular writer and adapter, rather than purely a man of science. He, however, claims to have introduced Descartes to the great Richelieu, from which favour, though nominally grateful for his friend's efforts, Descartes professes to have received no advantage. The two men were, perhaps, not sympathetic: the great cardinal, full of his schemes of ambition and aggrandisement, a man of action rather than of thought, might not have found himself in sympathy with the speculative spirit to whom life presented a quantity of interesting problems, rather than a stage on which he himself was to play his part. But Richelieu's ideas went far beyond mere material prosperity or territorial expansion; he had in view the necessity of making France possess a name and fame in literature, such as she had for might and power amongst the nations. He did not know that in Descartes he would find one who would do as much for the cause he had at heart as any of these great men whose names are connected with the foundation of the famous Academy so soon to be established. Descartes brought glory on his century and country, not only by his speculations, but also by the language in which he clothed his thoughts. But this was not realised till many years had passed.

There is only one of Descartes' friends who seems to connect us directly with the famous côterie of *beaux-esprits*, the *précieux* so famous in their time and of whom we hear so much in the memoirs of the day. This friend is Balzac who, Borel says, received a great kindness from Descartes in the clearing up to the Italian legate of some false accusation made against him. Whether this were so or not, Descartes held him in the highest estimation both as regards his character and his literary gifts. We are apt, perhaps, to forget this side in Descartes' character, which we may call the æsthetic, and which Nisard dwells upon so strongly in his history of French literature. With the seventeenth century, of course, a new era had commenced in letters.

The century preceding had been so much occupied with discovering the Truth, that the question of expression had hardly been considered. Now, men like Balzac and the rest applied their minds to the art of bringing about conviction, or—as we may say—to the art of eloquence: indeed, in many cases the matter was lost sight of in favour of the manner, as was certainly done both by Voiture and by Charron. Descartes, however, never erred in this way; he never, as so many philosophers have done, forgot that a subject must be laid before mankind in suitable and appropriate language — language which must exactly and directly express the meaning. Thus we understand how Balzac's writings appealed to him; and it is almost amusing to notice the excessive care and trouble bestowed upon the letters which he wrote to him. Descartes himself had clearly been largely influenced by the literary associations of Paris and the times. In one letter he wrote to this correspondent of the pleasure he had received from reading his letters, admiring, as he did, the purity of their language, which, as he well puts it, reminds one of the perfect health which is never more healthy than when it is least conscious of its health. He marvels that the exact observation of all the rules of art does not result in the enfeeblement of the style. To him Descartes, as we shall see later on, makes confession of his aims in his quiet life in Holland, and urges the delights of living in Amsterdam as preferable to all those of France or Italy.* One cannot help wondering whether Descartes ever joined Balzac's

* *Corr.*, vol. i., pp. 202-204.

In the new edition of Descartes' writings there is a curious letter of Balzac's, dated 1628, in which he thanks Descartes for his defence of his writing. In it he requests the promised *Histoire de son Esprit*, so anxiously awaited by his contemporaries, and in truly "precious" style he goes on to praise some butter sent him by his friend. He describes it as deliciously perfumed as though the cows had been "nourished on marjoram and violets," and as though there were sugar-cane in his meadows wherewith to fatten his cows. This butter surpassed even that of "Mme. la Marquise." †

† *Corr.*, vol. i., p. 571.

gayer friends in Paris, and saw Richelieu conversing with Corneille in the famous Hotel Rambouillet, or whether he met the great Mme. de Chevreuse, Voiture, or any other of the innumerable men and women of taste and fashion. But if Balzac endeavoured to introduce him to these, we know nothing of the fact.

Besides these friends whom we have mentioned, there were others of whom we are told, and who, if not friends, at least were visitors—and often, as it appears, unwelcome visitors—in the Faubourg St Germain.* One brought another, until few days passed without a new arrival. There was a M. de Beaugrand, a royal secretary, whom Descartes held in small esteem; a M. Silhon of Gascony (chosen as one of the first forty academicians by Richelieu in 1634), who wrote on the immortality of the soul; M. de Serisay, also one of the *beaux-esprits* who by their informal assemblages, laid the foundation of the Academy; M. Sarazin, secretary to the Prince de Conti, whom Descartes, "who had," Baillet says, "a taste for polish and *bel-esprit*," appreciated highly for these qualities; there was M. de Boissat, whom Descartes may have met in Italy at the siege of Gavi, and who was a disciple rather than a friend, and considerably his junior. He also was an academician. There were also others, including the Abbé Picot, a keen admirer, who later on translated the *Principles*, and who was in every way a useful and helpful friend.

It was at this time that Francis Bacon died. The news, Baillet tells us, affected Descartes, for on him and on his methods much hope had been reposed. How much Descartes owed to him, it is difficult to say. Bacon established a new method in science which was to prove invaluable, but it was not that for which Descartes was seeking. He was not so much concerned with obtaining a multitude of correct results and then deducing their consequences, as with working out a system of knowledge as a whole, a system which should be no mere mechanical one, but one that was living,

* Baillet, vol. i., p. 144.

and also fruitful: empiricism was nothing to him if he did not know the meaning of experience. The debt the century owed to the great Chancellor was, of course, immense; he taught it what the scientific method meant, and struck a deathblow at the old scholasticism. Descartes, however, was to show that something better should be substituted in its place—that because one antiquated system is destroyed, it does not mean that no philosophic system is required, but that, on the contrary, the need is as pressing as it ever was before. The time was one not only of scientific investigation and new discoveries, but also of much patient work of an unostentatious kind, in bringing to perfection the various instruments necessary for carrying out the larger enterprises. In those days, skilled workmen who could carry out directions were not ready to hand, but had specially to be created, and without their co-operation nothing could be done. Descartes was fortunate in having as a friend, Claude Mydorge, a famous mathematician of the time, and his "prudent and faithful friend" of twelve years previously. Mydorge was ready to assist him when working at his Dioptric, in procuring the glasses necessary for his demonstrations of the refraction of light. Mydorge, indeed, seems to have been one of those gifted beings who combined accuracy and skill of hand with clear understanding, and when Descartes retired to Holland he was a valued correspondent. Of course, Descartes himself acquired some knowledge of the practical art, since he had to instruct his workmen in it, and in a later letter he describes the processes in which he was assisted, not by Mydorge alone, but also by a maker of mathematical instruments named Ferrier, whose deeds and misdeeds often appear in his Correspondence.

Between visits from his friends, working at his instruments, and his own private reading, Descartes' time in Paris was fully occupied for the three and a half years he spent there. The study of geometry, which he had given up, was resumed, and besides that he had undertaken a new study, that of Man, for which he

thought he should have every facility. But here, in the midst of his fellows, he did not get what he wished for. Paris, the centre of the civilised world, was occupied with anything but the serious studies which Descartes pursued; his friends poured in upon him to talk, but the talk was not of that for which he cared, and he was alone without being alone. Clearly, this life was not the best, but how should he escape from it? His home—the home of his relative M. le Vasseur—had become a sort of academy: one friend brought another, as was the sociable manner of the times. Literary men, and those who wished to be thought so, found their way in with the rest, urging him to make known his discoveries in writing; booksellers whose curiosity was excited, endeavoured to force him into publication, even offering presents in order to obtain promises of precedence in the offer of manuscripts.* Perhaps they hardly realised the nature of the works which were in view: at least, they were not so liberal later on.

All this, which might have been pleasant to some, to Descartes was far from agreeable. It was not that he held himself in small estimation, or his admirers in disdain, but the sacrifice was too great, and the life was neither wholesome nor satisfying. Therefore, without telling his host (for he had returned to Le Vasseur's house), or any but a very few intimate friends, Descartes suddenly made off, going to a part of the town where he thought he would not be discovered. M. le Vasseur was naturally anxious, and one morning, meeting Descartes' servant in the street about 11 o'clock, forced him unwillingly to reveal the abode of his master, and finally to conduct him thither. Le Vasseur narrates the whole story of his visit. Descartes, as usual in the morning, was in bed, having sent his servant to execute his commissions; when his friend reached his house, he entered softly and put his eye to the keyhole, and saw him in bed, with the windows open and the curtain raised, and papers by the pillow. Often, he says, he sat up to write, and then lay back for half an hour at a

* Baillet, vol. i., p. 153.

time, to meditate on his work. At length he got up to dress, and then Le Vasseur knocked at the door as though he had only just arrived, while the wily valet came in from arranging the dinner by another door, affecting surprise. Le Vasseur pretended that his wife had felt offended by the philosopher's sudden departure, and after dinner, to which meal Descartes was forced to invite him, they went off together to find Mme. le Vasseur, to whom ample apologies were made, "the apologies, not of a philosopher, but of a man of gallantry, who knew the ways of the world." *

This incident was fatal to Descartes' plans; he felt he must at all costs leave Paris, since rest and quiet were not obtainable here, and he made up his mind once more, and for the last time, to see warfare and visit the siege of La Rochelle.†

We have seen that Richelieu had to withdraw his troops from Italy, in order to deal with the Huguenots once more: their rising was subdued by renewing the terms of the Treaty of Montpellier in 1625. The time had come, however, when the great minister felt that a blow must be struck, not only at the Huguenots, but also at the powers and privileges of the nobles, if the authority of the Crown were to be established. A plot had been formed by Gaston of Orléans, the king's brother, the Comte de Soissons, and the Duchesse de Chevreuse, to depose the monarch and assassinate Richelieu. The plot was discovered, and the plotters punished by death or banishment. But this was hardly done when the minister found himself involved in a war with England and the Huguenots once more. Richelieu had demanded from Charles I. a loan of ships, to use against the Huguenots, in conformity with his treaty. Buckingham endeavoured by all means to avoid carrying out this obligation; and when, at length, he was forced to send the vessels and fight against Soubise and

* Baillet, vol. i., p. 154.

† He may, however, have visited Brittany during the winter of 1628, since on 22nd January he was godfather to a son of his eldest brother.

the Huguenots, the Protestant party in England were so excited that he declared war against France to defend himself against their anger, and pose as a defender of the Protestant faith. In July 1627 the English fleet appeared before La Rochelle; the Rochellois felt compelled to join them, somewhat against their will, while the southern Huguenots took the opportunity of rising under Rohan. In November, Buckingham withdrew to England for reinforcements. Richelieu himself formed the siege of La Rochelle; and as he saw the impossibility of capturing it by land, with an open sea, he undertook the enormous task of building a mole across the mouth of the harbour, thereby cutting off the town from possibility of relief. The work took five months to accomplish, and was only just completed when the English fleet reappeared. The English did their worst for fifteen days, then left the place to starve. For five months longer it held out, and then surrender became an absolute necessity: this took place on 28th October 1628. When Descartes appeared upon the scene the siege was well advanced: the king had left in February after seeing the forts and mole commenced, thus leaving the whole responsibility of conducting operations upon his minister. He returned again in April, to find his army devastated by illness. It was August when Descartes arrived, and the first news he heard was that of Buckingham's assassination. He found the country crowded by spectators of this extraordinary siege, and he attached himself to certain gentlemen of Brittany and Poitou commissioned to deal with the English foe so soon as they appeared. But besides the camp itself, Descartes' main interest was in the marvellous engineering works which were being carried on — the forts, redoubts, and, above all, the mole with its towers and palisades and batteries: the two side wings of the mole were united by a bridge of boats made into floating batteries, fastened together by stout chains and defended by wooden stockades.

The scene was full of interest to one who had made a study of military engineering, and had been in the

army of Maurice of Nassau. Spinola came specially to visit the place after his return to Spain. Descartes, with his special knowledge, soon struck up an acquaintance with the engineers, and found an old friend in Des Argues, who was working here, and was much esteemed for his knowledge of mechanics. So interested did he become, that he could not tear himself away till the siege had come to a conclusion. The unfortunate inhabitants were driven to the direst extremities, and surrender would have come earlier but for the long-expected appearance of the English fleet. The king determined himself to reconnoitre the enemy at a village near, and he took with him the volunteers who, like Descartes, had been attached by simple curiosity and interest in the scene, and who were so numerous as to form three separate brigades. This was the last occasion on which René Descartes, even in name, followed the profession which for so long had occupied his attention. In this way, however, he had an excellent opportunity for witnessing the next occurrences; the English were forced to retreat, a truce was demanded in order to make propositions of peace, during which truce many of the foreigners visited the works, while the French gentlemen, amongst whom was Descartes, went to see the English fleet. The Rochellois, seeing no help came, demanded the compassion of the king, and the troops then entered the town. The sights that met their eyes were horrible in the extreme; the men were more like living skeletons than human beings, and they cast themselves upon the food that was given them, in a manner which was piteous to behold. Cardinal Richelieu said the first mass, the king entered without much pomp, while the inhabitants prostrated themselves before him, and the Te Deum was sung by court and army. Yet another ceremony for Descartes to witness, and surely a more moving one than any he had yet beheld. The siege being over, he posted back to Paris.

Shortly after his return, a curious event took place which established Descartes' fame in a remarkable

degree. The papal nuncio, afterwards Cardinal de Bagné, had summoned an assembly of learned men in order to listen to a certain M. Chandoux, who was to propound a new system of philosophy. Richelieu, in his desire to promote literature and science in France, attracted a number of men of every kind and sort, all of whom had for their ostensible object the destruction of the old scholastic system and the establishment of something better in its place. This Chandoux, by profession a doctor, was a man of some ability, who was more especially acquainted with chemistry, and the nuncio doubtless thought it desirable to collect the *honnêtes gens* of Paris to hear his views, in the sociable manner characteristic of the time. Chandoux was a fluent speaker, and had attracted considerable attention, more especially with the great men of the day, who were impressed by his charm of manner and the specious nature of his reasoning.

His system was expounded with an assurance which seemed invincible; he refuted the ordinary methods of the schools, and took credit to himself for a system not his own. So deep was the impression he produced, that on his conclusion he was greeted by almost universal applause. Descartes, however, who had been invited, and who had brought with him his friends Père Mersenne and M. de Ville-Bressieux, a physician of Grenoble, remained silent. The Cardinal de Bérulle, who was present amongst the *beaux-esprits*, observed his silence, and asked to have his opinion of the discourse. Descartes modestly replied that he could not speak in opposition to the feeling of the *savants* present; the cardinal, however, pressed him, as did his host. Descartes then stood up and stated that the manner of the lecturer had been admirable; that his talents were doubtless great; and his object, which was to liberate philosophy from scholasticism, was excellent. But the speaker believed that the probable was being substituted for the true, and when this was so, it was easy to pass off the false for the true and the true for the false, under fictitious guise. Then

he suggested that someone present should propound any apparently incontestable fact, which was done. By twelve arguments, the young man then showed it to be false. The operation was repeated, starting with an obvious falsehood, and by similar probable arguments its truth was clearly demonstrated. The company was astonished both at Descartes' genius and the ease with which they found their minds made the dupes of seeming truth; at once they asked if he could show them how to avoid such sophisms, and he replied that he knew no better than that which he himself made use of, founded upon a mathematical basis; and he did not believe there was any truth which could not be clearly demonstrated by its means, and following proper principles. Of course this was the famous method, by the which the proposition was first of all found to be a possible one, after which its solution was discovered by a mathematically certain sequence of reasoning. The opportunity for demonstrating this newly-found principle—whose newness sounds strangely to us now—was a great one, and Descartes was fully conscious of its importance, as is shown by his allusions long years afterwards. The occasion was doubtless a remarkable one, since it gave the philosopher — still comparatively young — the opportunity of publicly asserting himself, and taking the place in the world of learning to which his talents entitled him. It shows us that he had grown from youth to mature age—that his opinions were fully thought out and developed: the work which lay before him now must be to demonstrate, not only to the little circle of *beaux-esprits* in Paris, but to the civilised world in its entirety, those deeper views of truth which had been reached by careful thought and study. Descartes had certainly succeeded in throwing off tradition, and in searching for his object in his own particular way.

The company would seem to have been easily moved, for some at once deserted the unfortunate Chandoux for the rising philosopher, who, Clerselier emphatically assures us, was complimentary to his opponent, and

merely made it clear that his system, through no fault of his own, would lead to results similar to those of the system it was intended to replace. The Cardinal de Bérulle begged for yet another discourse of a similar nature, and Descartes visited him shortly afterwards, and delivered himself of his principles, showing how they could be applied to medicine and mechanics. The cardinal took Descartes very seriously, perceiving the remarkable nature of his talents, and he employed all his authority in impressing on his mind the necessity for cultivating these talents and executing his designs: he showed him, Baillet tells us, that he was reponsible to God for giving to mankind what had been delivered to him, and he believed his work would carry blessing with it.*

The impression which Descartes obtained from this conversation was deep, and he laid to heart the solemn admonition he had received. To say the truth, much probably was not needed to set alight the fire that smouldered in his breast. He had the sense of nascent powers within him; his meditations could be kept to himself no longer; he must speak them out. He felt he had found his life-work; there was no question now of what his profession should be: the message was there to deliver, and he must deliver it. How, then, should he do so most effectually? Above all, he must have two things—quietness and time—in order that his inmost meditations might be brought to birth.

* Baillet, vol. i., p. 165.

PART III

CHAPTER I

SETTLEMENT IN HOLLAND, 1628-1630

THE next step taken by René Descartes was the crucial one in his career. He saw that the life he had been leading was not conducive to satisfactory work. Parisian life in those days was in some ways different from the life of any other modern city before or since. The talk, at least in the best society, was largely of authors and their books; style was discussed, personalities were discussed, politics were discussed, and all with a brightness and wit which cast a glamour everywhere around. Everyone for the time being was literary in a fashionable sort of way, and the great spirits of the time, the greatest of whom were just rising into manhood, were the heroes whom all united in worshipping. Now, to some men, all this might have had an inspiring effect; more specially, perhaps, might it have been so with the poet and the playwriter; but the study of philosophy demands surroundings of a different sort, and it, of all subjects, requires that time and quiet shall be at the command of the thinker. The peace and quietude of Holland, as we know, allowed our own Locke to gather together his ideas for the composition of his famous Essay, a work which, we are told, might never have been written had he not had reason to quit his native land. Descartes felt the critical stage in his life had at length been reached, that now or never must he bring to light that which had been simmering in his mind these last

nine years, or since the memorable "conversion" which brought him to devote his life to the service of the Truth. He had roamed about, as he tells us in the *Method*, desirous of being a spectator rather than an actor in the theatre of the world; he had been gradually rooting out error from his mind, doubting not for doubt's sake, but to "find ground of assurance," so that he "cast aside the loose earth and sand," that he "might reach the rock or clay."* To all appearance, he lived like those who had no other object than to spend their lives agreeably; he devoted hours from time to time to the practice of his Method, and applied himself to the solution, not of mathematical difficulties alone, but to those of the other sciences also. Still, after all, he felt he was only at the commencement of his work, and the failure of others would have discouraged him so greatly as to have delayed his taking the momentous decision, had not the report got abroad that his inquiry was completed; thus he had sufficient ambition or pride of character to try to render himself deserving of his reputation.

Now the question came, where was the place of quiet and retirement to which he should withdraw with safety; and that was answered as it had been answered to so many exiles from their countries in the century in which he lived. Holland was a land which Descartes already knew, and where he had made some friends: "the long duration of the war," he says, "had led to the establishment of such discipline that the armies maintained seem to be of use only in enabling the inhabitants to enjoy more securely the blessings of peace."† Did he wish to live in town, to have the benefit of witnessing the stir of busy life, he could be "in the midst of a great crowd actively engaged in business, and more careful of their own affairs than curious about those of others." With all the convenience of populous cities, he could "yet be as solitary and retired as in the midst of the most remote desert."‡ Holland, at this time, had reached her zenith: trade flourished there, as it had done

* *Method*, pp. 28, 29. † *Ibid.*, p. 31. ‡ *Ibid.*, p. 31.

in Venice; in spite of long wars, prosperity everywhere abounded: we well know how these are just the conditions in which true solitude can be found for him whose interests do not run simply in the common stream. Other reasons were given for his choice which may have influenced him: he did not know what would be the result of the publication he was contemplating. Paris was apparently a place of liberty; but the Church was watching in case her children's faith might be endangered. Descartes had no desire to bring himself and his opinions into opposition to that faith, but men had to be wary in their doings, and trouble might come when least expected. Holland, in spite of its religious wars, was the land of liberty, the refuge of all oppressed ones: a place of safety for foreigners, and specially, Descartes tells us, for those of his religion: within its borders there was—so at least he thought—security from ecclesiastical oppression.

The step, once decided on, must be taken swiftly and quietly, to avoid the inevitable opposition from relatives and friends. He bade no adieu, only wrote his excuses. His faithful friend, Père Mersenne, was taken into his confidence, and undertook to manage the matter of correspondence, whilst carefully concealing any knowledge of his retreat; while to the Abbé Picot were confided all his business matters and arrangements. He deemed it better not to make direct for Holland in the beginning of the winter, and therefore he spent a few months somewhere in the north of France, where he could accustom himself to cold and solitude, and be far from the attractions of a town: to make a sudden change of any kind was contrary to his principles, and this change would certainly have been of the extremest kind.

The experience did not serve in any way to daunt him, and Descartes made his way to Amsterdam in the end of March 1629, having attained the thirty-third year of his life. As might have been expected, he found in Amsterdam letters awaiting him, blaming him for his

foolish action in leaving the land of his birth and attachment, for renouncing his friends and selecting as his residence so remote a place as Holland. But if his friends thought such arguments could move him, they were mistaken. His mind was made up, and he was not to be turned, nor did he even deign to defend his action until the first resentment was past: then he explained that he could not live the life that he desired, mixing as he did with men of a rank of life similar to his own, of whom social duties were expected, such as occasional attendance at the court. Years afterwards, when Richelieu would fain have had him back in Paris to adorn his native country by his talents, he told Mersenne that the distractions of Paris would be fatal to his work, and that he much preferred country life, where he could not be troubled by visits from his neighbours: he declares that the importunities of his friends and relatives formed the only reason for his leaving his country, and we have no special reason to think he was not speaking the truth, or that he was really over anxious for his safety. This motive might have weighed with him, indeed, but any danger he incurred in France hardly seems sufficient to warrant the precautions taken, while the manner of life he led in Holland quite justifies the theory first mentioned. Another reason, indeed, was stated, viz., that the warmer climate of his country did not suit his temperament, and that he was unable to grapple with truths in which the imagination was not brought into play. The air of Paris, he considered, had a poisonous effect upon him, which insensibly turned his mind to vanities and caused him to follow after false ideas: he experienced these effects more specially in 1628. All men at some time or place may have passed through similar experiences, but they have not dignified their feelings by ascribing to them such far-fetched causes, and if Descartes were less matter-of-fact and solemn, we should fancy that he was not altogether serious. But, like certain of his sex who live in solitude and devote themselves to study, he bestowed a large part of his attention on his health,

taken in relation to his power of work, and the subject was one on which he was tempted to become morbid.

In any case, Descartes was free to choose, and he declared himself well satisfied with his choice. Much of the country in the north was new to him, and it was always interesting to explore. His account of his new home, as given to Balzac, overflows with enthusiasm. This child of nature does not wonder that the court is irksome to his friend, and it would be a sin against the spirit to turn him against his resolution to quit the world. A country home, however perfect, has always, he says, some drawback as against a town, even as regards its solitude, while Amsterdam has all the bustle of a city with as much quietness as in the depths of country. "The noise of the traffic interrupts my meditations no more than would the flow of a river. If I reflect about men's actions I receive the same pleasure that you would receive from watching the peasants that cultivate the ground, considering that all their work goes to add to the attractions of the place of my abode and ensure my lacking nothing." Then he goes on to picture the delights of seeing the vessels coming in laden with all that is produced in so much abundance in the Indies, and with every rarity in Europe. Where else in all the world, he asks, could one find with such ease all the luxuries of life and every object that is of interest? "Can you tell me another country where so complete a liberty can be enjoyed; where one can sleep more quietly; where there are always soldiers ready to guard us; where poisoning, treason, and calumnies are less known; and where more of the innocence of our ancestors remains to us?" He wonders how anyone can prefer the air of Italy, often pestilent and unhealthy, the oppressive heat by day and dangerous evening coolness, the darkness which is a cloak to crime and wickedness; and if the cold of winter is to be dreaded, he concludes in his enthusiasm, "tell me, what shades, what fan, what fountains can preserve you so well in Rome from the inconveniences of heat as a stove and

blazing fire here can preserve you from the cold?"* In spite, however, of these indictments against the land of sunshine, Descartes, on a future occasion, said he might have lived in Italy had it not been for the danger to his health; but this was when accused of favouring the preachings of the Protestant sectaries and residing purposely amongst them. He did not seriously mean it. His health, always a source of some anxiety whether necessarily or not, certainly flourished in the cool northern breezes, for he tells us that he sleeps ten hours a day, has enchanting dreams of trees, gardens, and palaces, and in waking, the dreams of night associate themselves with those of the day, and he simply wakens to more complete contentment.

Whether Descartes was much alive to the beauties of physical nature, it is hard to say; we might judge that he was not so from his letters. Man seems to interest him infinitely more than nature, unless regarded in her scientific aspect. But in this haven of delight its artists are never mentioned, and art was now flourishing both in the town of Amsterdam and in the country round. His interests naturally became centred on himself and on his work, and the world around was considered in its relationship to him; but otherwise his life was good, healthy, and orderly, and we cannot but respect him for his courageous adoption of it. He was no misanthrope; he would, he tells Chanut, have gone gladly to live in a town of *honnêtes gens* could they be assembled all together; the greatest pleasure in life, he says, is to converse with those whom one esteems; and we know how, when occasion offered, he could turn a phrase or write a letter in the most approved manner of the *précieux:* but his proper element was not here.

If Descartes had, as he appears to have had, a susceptible side to his character, why did he not marry, as recommended by his relatives when they advised his settling down in some suitable post? The question is as futile as are all such questions. Several traditions have gathered round his name since the days of his

* *Corr.*, vol. i., p. 204.

childish admiration for the "squint-eyed" girl. There is a story of a lady of Touraine to whom he is said to have paid his addresses, but the narrator of it sweeps aside the tale on the somewhat rash ground that her mediocrity of mind could never have touched the great philosopher. He also states, however, that Descartes had only seen her image in a painting by the Abbé Touchelaye. Why he showed it to him we do not know, unless he wished to interest him in its subject. But after his relatives' advice in 1625, he seems to have been really interested in another lady (whom Baillet names Mme. du Rosay) of "birth and merit," but the lady would appear to have felt that the courtship left something to be desired, and that, for Descartes, philosophy held the first place. His gallantry on this occasion, too, had been at fault, for though she was by no means plain, he told her that "no beauty was comparable to that of Truth." She also said that the young man had discoursed at length to a company of young gallants on their relationships with women, and after expressing to the company his astonishment at seeing so many who had been made their dupes, he declared that so far he had not been personally affected, and that "his own experiences —not to say the refinement of his taste—led him to declare that a beautiful woman, a good book, and a perfect preacher were the things most impossible to discover in the world." * Probably Madame did wisely to draw back, with so little to encourage her. However she felt honoured by her temporary distinction, such as it was, and delighted to tell a tale of how one day, when her friend accompanied her to Paris along with some other ladies, he was attacked by a rival lover on the Orleans road, and how he first disarmed him, and then, delivering up his sword to his antagonist, told him that it was to the lady and not to his own exertions that he owed his life. This has quite the air of a Musketeer adventure, but there is little of such romance in Descartes' life, and it is difficult to think that he and D'Artagnan belonged to a similar age, or, indeed, that this tale had much

* Baillet, vol. ii., p. 501.

foundation on fact. We know that he had a liaison with a woman later, but it appears not to have played a great part in his life except through the child that was born to him. His real interest in womankind came later, when he formed those remarkable Platonic friendships of which we shall speak further on.

Amsterdam was the philosopher's first place of abode in Holland, as we have seen. The Prince of Orange, Frederick Henry, who succeeded his brother Maurice, was still occupied in warfare with his hereditary enemies, the Spaniards, who sustained the famous siege of Bois-le-Duc, but were forced to capitulate in September 1629. As Descartes had really abjured the militant life, and had come to Holland for quietness and peace, he this time resisted the temptation to join the army, and remained in the busy and lively town of his choice. Indeed, as Baillet says, not only did he renounce public life in any shape or form, and regard himself as a stranger in a foreign land, but so constantly did he change his resting-place that he resembled the Israelites in the desert.* His sojourn at Amsterdam was interrupted by visits of several months' duration to Franeker in Friesland, to Deventer in the province of Overyssell, to the Hague and Leiden, to Denmark and Dordrecht. Then he made Utrecht his headquarters, but went often to the country, living sometimes at Egmond-binnen, near Alkmaar, Harderwijk on the Zuider Zee, etc., after which Endegeest, near Leiden, became his home until he moved to Egmond op de Hoef in 1643. On his return from a visit to France, he made Egmond-binnen his permanent home, though Alkmaar and Haarlem were the places to which his letters were addressed, and he may have lived near the latter town for a time. In 1647, he paid his second visit to France, and Abbé Picot accompanied him home. The next year he paid another visit to his native country, and then returned, not to quit Egmond again, except for his final journey to Sweden.

Descartes' wanderings were certainly manifold,

* Baillet, vol. i., p. 75.

though they might be confined within a comparatively restricted area: in spite of his remarks on Amsterdam, he evidently preferred a country life, or else to live in the outskirts of a town. He was clearly bent on remaining concealed, for his letters were hardly ever addressed to his own abode: sometimes they were sent to Beeckman's care at Dort, to Blœmært at Haarlem, to Reneri or Van-Sureck at Amsterdam, or to Hoogheland at Leiden, and his letters were dated in similar fashion. In France, his faithful friend Mersenne alone had the knowledge of his whereabouts, and so faithfully did he guard the secret that even those who were travelling in Holland, and who would have given much to have seen the famous philosopher, were denied that privilege. There came, of course, a time at the end when his reputation was too great for such concealment to avail.

He had been but a few days in the busy town of Amsterdam, before he left its comforts and society for Franeker, on the other side of the Zuider Zee. A university had been of late established there, and consequently there were a few kindred spirits to be found: there was also a pleasant little château only separated from the town by a ditch or dyke. Probably, Descartes was content to have but an *appartement* in the castle of which he speaks, which was that of a noble family of Sjaerdama: the family lived at another château near Leeuwarden, and were in the habit of letting this abode. Mass was regularly celebrated in the town, and this may have helped to determine his choice of residence. He had probably, too, contemplated attending the classes of the university, for his name is inscribed upon the books, as M. Eckhoff of Leeuwarden, who made a special study of the philosopher's life in Friesland, tells us. It is entered as *Renatus Descartes, gallus philosophus, 16th April* 1629: (the French form of the surname is significant). No doubt the life at Franeker would be simple enough: the clean little town is charming in its simplicity even now, though shorn of its academic distinction. Descartes begs Ferrier, in the event of his deciding to join him, to bring a small camp bed,

since the beds were very uncomfortable and without mattresses—but evidently the general discomfort was not great, since he says that he likes the place so well that he does not think of leaving for a long time.* However, in five or six months he returned to Amsterdam.

Once settled here, Descartes set about his work in earnest, and he resolved to commence that work with meditation on the existence of God and on the immortality of the soul, "renewing," Baillet tells us, "his vow to work for the glory of God and the good of mankind." To us the "proof" of God's Being, which was so much occupying his attention, may, perhaps, seem rather strained. The point of view of theology he rejects in favour of what he calls the metaphysical outlook, in which the examination is conducted by the Reason which should be employed by men in knowing God as well as in knowing themselves. Thus his method is similar to that which he applies to Physics, and these spiritual truths were to be demonstrated as certainly and clearly as are physical or geometrical facts. For nine months after reaching Holland, this was the subject of Descartes' study, but he wished to refrain from publication until he knew how his Physics would be received.† For he believed that in his Physics these other metaphysical questions could be introduced, by showing that mathematical truths proceed just as necessarily from God as do the others. Of course, in his argument, the usual difficulty comes in, that if God is a sovereign like an earthly sovereign, He may be an arbitrary sovereign, and change His laws just as He made them, which argument he meets by saying that these laws are eternal and immovable, as is God Himself. There was a point beyond which Descartes could not go. He was willing to see God in Nature—to promulgate a so-called "natural theology," but when these limits are overstepped, he professes reverently to accept and to be silent. Even at this date he was no agnostic of the type so common in his time. He says

* *Corr.*, vol. i., p. 15. † Baillet, vol. i., p. 179.

to a certain point, "I know," beyond that, "I accept," in spite of apparent inconsistency with the rules he had himself prescribed. It was difficult to dissociate himself from the dogmatic forms then paramount, and the teaching of the Jesuit Fathers had not been without effect; whether it were but as a concession to the orthodoxy of the day or not, Descartes professes the greatest indignation with the "audacious and impudent" writings of atheistical writers, and sincerely he maintains that, to him, the existence of God is more clearly demonstrated than is any geometric problem. Universal consent he considers in itself a proof; but, all the same, he evidently feels that the ice on which he walks is thin, and that he had better not meddle too deeply with subjects so difficult and dangerous. It is interesting to compare his point of view with that of Pascal a little later on. Pascal's acceptance of the dogmatic point of view was much more real and thorough; in this case there is no room to doubt its absolute sincerity.

Religious speculations did not, however, occupy all Descartes' time in Friesland or after his return to Amsterdam. From an allusion in the *Method*, it seems as though the *Meditations* (published in 1640) were actually composed in Amsterdam, though, of course, it probably was but their first rough draft, as seems evident from the matter of his letters; in any case it was a memorable spot in Descartes' life. In addition to his speculation on the subjects which were occupying him most, he was corresponding with the practical Ferrier, the craftsman of whom we hear much about this time, respecting his glasses, and urging him to summon up courage to come out to join him "in the desert." The invitation, perhaps, sounded not too inviting to the Parisian workman, even though Descartes promised that they should live like brothers, and that he would defray all his expenses and send him home whenever he desired. The season was favourable, he says, and the sea at present tranquil (Ferrier might have reflected for how long!); if he made his way to Calais he could get on to Dort or Rotterdam in a day or two, and when once

there he could see Beeckman, and he would direct him for the short journey onwards, as well as supply him with funds: if he brought with him furniture, the two could set up a joint menage. But, above all, he was to say nothing to anyone about his intentions, and for the reason that it would disclose his patron's whereabouts he could send no money. The bait, however, was laid in vain, the cautious Ferrier would not rise to it, and certainly Descartes did not seem to act in selfishness, for in a later letter he urges him to do his best to procure the position he wished at the Louvre, in the employment of the brother of the king (Gaston of France), but meantime not to allow himself to be idle.*

This refusal seems to have put an end to the projected house furnishing, although the man-servant, who "knew how to cook in French fashion," had been engaged, and Descartes had thought of taking part of the château in which he was, for a period of three years. Instead of this, he continued to pursue his bachelor ways and roaming life. It is not easy to trace his doings during the following years of his life. He appears, after returning to Amsterdam, to have kept up his correspondence with Ferrier regarding the manufacture of glasses, of which he had a marvellous understanding, and respecting which Descartes expected much, if what he says to his correspondent of his hope—will he only give a year or two to the work—is serious. He says that by his help they would discover whether there were animals in the moon.† That, however, might be merely a word of encouragement to the workman, who had much to suffer under the impatience of his masters. Descartes gently reproves him for his reflections regarding Mydorge, who, Ferrier believed, was taking credit really due to Descartes himself; and as his work was not remunerative, however interesting, he urges

* It appears from a letter from the correspondence of Chr. Huygens, that Ferrier actually went to Holland about ten years later (*Correspondance*, vol. i., p. 19).

† *Corr.*, vol. i., p. 69.

him to undertake the common and less interesting sort. He also recommended him very specially to Père Mersenne, as one who would work well with time and quiet. However, five or six months elapsed, and no reply was received to the long letters, "which almost resembled books," explaining the nature of the work to be accomplished; and then, to his surprise, Mersenne wrote that Ferrier would fain join him, and that he had thrown up some work undertaken for M. Morin. But Descartes by this time had given up the idea of having him as a companion; his rooms in Amsterdam were not suited to the purpose; he had lost faith in his stability of character; and he begs Mersenne to tell him that he might find him in England were he to undertake the journey to Holland, and if, as he suspects, he is still bent on making out the journey, he is to be assured that there is less to do and see than in the smallest French provincial town, and that living is dearer than in Paris, which last is difficult to believe.* Then his conscience rather fails him, for he remembers poor Ferrier's good qualities, and that his only fault is that he does not "lay his account with things as they are, but as he would have them," and concludes by asking the good Mersenne to counsel him as he thinks best. However, his difficulties were by no means at an end. Ferrier complained about his treatment. Descartes then wrote somewhat angrily to him to justify himself. Ferrier had complained of having wasted his time fruitlessly on Descartes' work; while the latter declared that he had undertaken the work voluntarily, having had all difficulties and possible ill-success explained, and he challenges him to prove the contrary. Ferrier then carried the complaints to some Father of the Oratory, to whom Descartes makes a further defence, declaring that Ferrier is to be regarded as one afflicted with the gout or similar painful disease, and that a touch is sufficient to make him scream: "he does nothing which he undertakes, and besides has no generosity of soul." †

One can easily picture to oneself the circumstances.

* *Corr.*, vol. i., p. 131. † *Ibid.*, vol. i., p. 173.

Descartes, ever eager and anxious about his work, had, while with him, dominated the less educated workman: with Descartes absent, the spell had been broken, and Ferrier had become discouraged in his work and anxious about his future. Descartes was placed in a difficult position, and hardly realised the temptation to grumble on the part of a man like Ferrier. Ferrier thought himself neglected, forgotten, and blamed the adverse influence of others. He begged Descartes' friends to interfere on his behalf, and the Fathers of the Oratory and Gassendi did so. The latter wrote through Reneri, testifying to the unfortunate Ferrier's gratitude to his master, "to him he was as a Divinity come down from heaven."* Descartes received the letter, as he had not gone to England, probably owing to Mersenne's prospective visit to Holland, and set to work to defend himself to Gassendi and the rest. We are glad to know that he kept up relationship with his former assistant, aided him in various ways, and more especially recommended him to those who might employ him. This closed a very disagreeable incident, and, on the whole, the philosopher came well out of a situation of considerable difficulty.

We must now return to Descartes' life in his retreat, first at Franeker and then at Amsterdam, and follow out his work, so far as possible. He would appear to have been distracted by many rival interests which prevented him from fixing his attention on any one of them sufficiently to be able to publish his views regarding it. One matter which particularly occupied his notice was that of certain parhelia seen by a German Jesuit Father and other mathematicians both at Rome and at Frascati in March 1629; and through the Cardinal Barberini, who was deeply interested in science, this came to be known by Gassendi (who made a journey to Holland without seeing Descartes) and two friends of Descartes in Amsterdam. These were Waessenaer, a doctor, and Reneri or Renier, afterwards professor of philosophy at Deventer, whom Beeckman had introduced to him.

† Baillet, vol. i., p. 217.

The phenomenon of parhelia, or mock-suns, was not then understood, and Descartes was much interested in it, and corresponded on the question with Mersenne. He was, however, occupied at the time with his *Meditations*, and left it to Gassendi to write upon the subject. Still his curiosity was so much aroused that he ceased his philosophic speculation in order to turn his attention to the subject of meteors, and he announced to Mersenne, after returning to Amsterdam, that he thought of writing a short treatise on the colours of the rainbow and other similar physical phenomena. Even at this time, Baillet tells us, Descartes' desire was that all who spoke French might be able to comprehend his writings, and he requested Mersenne to undertake the publication of his treatise in Paris.* But this scheme was merged in the other work on meteors, written later on.

If heavenly bodies were of paramount importance at Franeker, on Descartes' return to Amsterdam chemistry and anatomy took the chief place in his studies. But about this time he was saddened by the death of his Parisian friend, Cardinal de Bérulle, superior of the Congregation of the Oratory, of whose interest and encouragement we heard at the time of Descartes' criticism of Chandoux at the nuncio's house; he it was who was responsible for the direction of much of Descartes' life. He seems to have been a remarkable man, much involved in court affairs, and was also the founder of the Oratorians. Descartes held him in high esteem, and took his advice about many matters: he also remained on terms of intimacy with many of the Order of his institution, even if we do not go so far as to say, with Baillet, that it was to them that he confided the direction of his conscience while in Holland. Another loss which philosophy and science had sustained was that of Gaspar Bartholin, the Danish anatomist, whose influence probably had something to do with Descartes' determination to turn his mind to medicine. His enthusiasm for this study, when first undertaken, may be gathered from the account of it given in the *Method*,

* Baillet, vol. i., p. 191.

where he tells us what, to him, is the meaning of a *practical* philosophy; of how much value it would be in our lives if we knew the force and action of fire, water, air, the heavenly bodies, and were able to apply them to our uses; of how we should specially concern ourselves with procuring health, the first blessing of life, especially as the mind is so dependent on the condition of the organs of the body, that this is the true direction in which to seek advance in wisdom and in knowledge. He allows that little, so far, has been accomplished, but there are, he says, endless possibilities before men of freeing themselves from maladies of body and mind, as well as possibly from the debility of age. For himself, he resolved to employ his whole life in this search after knowledge, and the end must be reached unless life were cut short or experiments were insufficient.*

The work, indeed, was a great one, and worthy of the supreme efforts of a mind such as Descartes'; but when we think of the centuries of faithful labour on the lines which he so carefully laid down, we cannot but feel that the enterprise on which he was embarking was, not a hopeless one indeed, but one the significance of which he hardly realised. Not one life alone, but many generations of lives have proved too short for the work of patient investigation, in which the great philosopher and man of science from the quietude of his Dutch retreat set so noble an example. He was, however, in great measure the founder of that method of investigation which was to bring forth much fruit in the direction of the scientific knowledge of the body, its diseases, and its functions. Anatomy he recognised as the study to which he must first direct his attention, and for that his facilities were great in Amsterdam, where, Baillet tells us,† he daily visited the butchers' shops, taking home with him the special portion of the animal which he wished to dissect at leisure. No wonder that at this date the practice brought ridicule and worse upon the student, and his biographer's defence sounds strangely, concerning as it does the accusation of "going about

* *Method*, p. 62.

† Baillet, vol. i., p. 196.

to villages" (Baillet declares the indictment false so far as the villages were concerned) "to see pigs stuck." Reading and writing were to a great extent set aside for this practical work, since what had been written on anatomy did not prove of much assistance. In writing to Mersenne Descartes declared that, after eleven years of study, there was no portion of the body, however small, the existence of which he could not satisfactorily explain, but that as yet he could not cure even a fever—a disease then believed to be peculiar to man—and that he therefore felt obliged to turn his attention to the human frame.* Chemistry was soon added to his other studies, and the discovery of a rational and certain basis for medicine became the object of his ambition—an object, as he understood it, far from realisation. We have a letter, dated January 1630, in which he begs Mersenne, who has been suffering from erysipelas, and another friend who was ill, to endeavour to preserve their health until he should have discovered a system of medicine capable of irrefutable demonstration.† As appears later on, Descartes had a real expectation of obtaining results which would have the effect of startling mankind.

But the world was full of interest on every side to the ardent young philosopher. The subject of musical sounds, which, as we have seen, occupied him years before, was once more discussed. Mathematics presented new possibilities when applied, as he proposed to apply it, to the laws of light and air—so much so that he believes the illusions ascribed by the magicians to the influence of demons may be scientifically explained: to him it was indeed a "science of miracles," only in his case the miracles were miracles accomplished by rational means, and much more marvellous in this way than unexplained and unmeaning wonders.‡ The phenomena of nature were brought under review—the rainbow, sunspots, the law of falling bodies, which Descartes did not thoroughly comprehend at a time

* Baillet, vol. i., p. 197. † *Corr.*, vol. i., p. 106.
‡ *Ibid.*, vol. i., p. 21.

when Galileo's law was not yet published. Another question that occupied him was the proposal to establish a universal language—a subject which was afterwards taken up by Dr John Wilkins under the inspiration of a Scotsman, George Dalgarno.* At this time, however, Descartes favoured the adoption of the Latin, or some similar existent tongue, rather than the construction of a new language altogether; but he goes on to explain how a really philosophic language might be established, in which the thoughts of men should be expressed in so far as they are clear and simple: he believes that an order should be instituted between all the thoughts of the mind, like that which we find naturally existing between numbers: or that his Method should be carried out in regard to language. For his part, he appears just now to have preferred writing in the Latin tongue, though writing for the public in any language was distasteful to him, and he repented having given as his reason for quitting Paris that he wished for leisure to put his thoughts in writing. According to himself, he only wanted to be forgotten; a reputation would but bring to him lack of liberty and leisure, and these last formed a possession more valuable than the gift of any monarch. He was indeed working at his treatise, but in private, so that he might at any time disclaim his work; he wished to work slowly, being more concerned to convince himself than just to convey to others his reflections. The former was his true interest and pleasure; the latter a duty forced upon him. The book he was to write would, he tells us, be small, and other treatises promised would never see the light. But the most important matter always was to apply himself to the conduct of his life, and above all, to instruct himself.†

What Descartes' social life at the time was like, we do not know. He implies that he sometimes played by speaking of time wasted in vain conversation and play.‡

* *Corr.*, vol. i., pp. 81-82.
† Baillet, vol. i., pp. 198, 199.
‡ *Corr.*, vol. i., p. 21.

Doubtless he had friends, but possibly these were more numerous in the university town of Leiden, than at Amsterdam. His friend Reneri obtained an appointment at the former in 1630, and thus he was separated from him. Descartes himself entered as a student at Leiden on June 27th, 1630.* Mersenne appears to have made a journey to Holland in the summer of 1630, and to have visited Beeckman at Dordrecht. This was the occasion on which the latter made so great an impression on Mersenne, and endeavoured to enhance that impression by asserting that Descartes derived much of his knowledge of music and geometry from himself in the Breda days, when they used to meet as friends. Descartes was naturally indignant, as we have seen. He satirically begs his correspondent to take what seems good to him, as there was no record kept of his results (as his editors point out this was not true), nor was the date of his inventions noted.† The letter is full of bitter satire, which may have been deserved, but we cannot but wish, for the writer's sake, that it never had been penned. Doubtless Beeckman's complaints and boastings were trying, and even more his praises where praises were not wanted, but Descartes could have afforded to overlook what to a lesser man might seem a great and indelible offence. The colleague in the college of Dordrecht who wrote on Beeckman's behalf, brought Descartes to a somewhat better state of mind, and caused him to think the offence one of manners rather than of matter. And Beeckman is not without his defenders in the controversy. Leibnitz himself says, as quoted in the new edition of the *Letters:* "It seems to me that wrong has been done to M. Isaac Beeckman. M. Descartes gave a strange twist to things when put out with anyone."‡ Gassendi also praises Beeckman highly.§ Descartes

* *Corr.*, vol. i., p. 205. Reneri was made professor of philosophy at Deventer in 1631, and Descartes speaks of the pay being better than at Franeker or Leiden, and the comfort greater.—*Correspondance*, vol. i., p. 226.

† *Ibid.*, vol. i., p. 157.

‡ Edit. Gerhardt, iv. 316.

§ *Ibid.*, vol. i., p. 169.

need not at least have scoffed at his birthplace, nor dealt in personal allusions. He was evidently a difficult opponent, and similar literary differences ending in something like quarrels followed him throughout life. We are glad to know that this one had a satisfactory ending.

The visit of Père Mersenne during the summer of 1630 (not the winter previous, as Baillet seems to think) must have been an immense pleasure to his friend and constant correspondent. Mersenne's interest in those he met was keen, and he visited men of learning in the Catholic and Protestant provinces alike; in this way, indeed, he brought himself into trouble when he reached Antwerp, for he was accused of having dealings with heretics, under the guise of scientific investigation, and Descartes appears to have comforted him as best he could. Mersenne had gone to take the waters at Spa; and on November 4th, 1630, Descartes writes regretting that he had wasted a fortnight from having reached Liège too soon, since during that time they might have made some expedition together.* How much they did see of one another it is difficult to say, but Mersenne appears to have returned to Paris in the beginning of winter.

During Mersenne's absence, there was no means of communicating with Descartes, since he alone in France was kept acquainted with his movements. Hence Descartes did not receive, as soon as he should have done, a book by Père Gibieuf, which he would otherwise have read, and an account of which had been sent him by Mersenne, who was in the habit of keeping him acquainted with new publications of interest. The book was on the "Freedom of God and of the Creature," and Descartes sends a special message of gratitude to its author, to whom he wished the fact made known, that he was occupied with more than the practice of arms, and that he was not spending the idle life that he professed to be doing. Descartes' opinions on all literary matters are very fully expressed in his letters to

* *Corr.*, vol. i., p. 171.

Mersenne. On one occasion, when dealing with some unknown book of which thirty copies had been privately printed, and which he considered atheistic and objectionable in its tone, he goes so far as to speak of it as the *méchant livre*. After his nine months' study of Theology, he is clear that though what pertains to revelation must be accepted as it is given, metaphysical questions must be examined by the reason which is given us for that purpose.* He desired to show that mathematical and eternal truths are established by God from the beginning, and that they are immutable only because He is unchangeable. God is to be regarded not merely as the Deus of the Romans, but as an incomprehensible and infinite Being, the author of all things.† But Descartes hesitates to speak of matters of this kind, and in another letter he is evidently puzzled to meet the question of eternal punishment, except by placing it in the category of questions of faith not to be dealt with by human reason. We always find him fighting shy of topics such as these, and we almost wonder how Mersenne dared to tackle them, considering how such investigations were then regarded.

Mersenne had, as Baillet tells us, no easy task in collecting and forwarding mathematical questions to Descartes and distributing the replies. The indefatigable priest would also have liked other problems set for solution, but at this date his correspondent found the process tiring, especially as he was not studying mathematics at the time, thinking many of its operations vain and sterile. However, during the year 1630, we find him busy in discussing subjects such as the production and carrying power of sound, condensation, etc., with which he means to deal in his *Monde*, the nature of light (to the consideration of which he would like to give a month or two), and many questions of chemistry and anatomy. So strange a subject as the conservation of the colour of the bread in the Sacrament also is discussed.

* *Corr.*, vol. i., p. 144. † *Ibid.*, vol. i., p. 150.

The winter had been a mild one, without snow or frost, and on one occasion Descartes quotes Kepler in reference to his treatise on snow, which interested him. This was just the year of Kepler's death. Kepler and Descartes do not appear to have met in Germany, where the former worked with Tycho Brahe, and finally succeeded him as mathematician to the Emperor. But his writings on astronomical subjects influenced his contemporary very considerably, although their methods were very different. There was a strange self-consciousness about Descartes at this time—as, indeed, throughout his life—which prevented his making many friends. He continually urges Mersenne not to divulge the place of his abode; and while declaring that he did not wish to be thought about at all, he evidently is nervous about being thought ill of or disregarded. He is bent on continuing his work, and yet prefers acquiring information to delivering himself of his thoughts on paper, so that he wishes to fix a date for the production of his book, in order to have a limit imposed upon him: still, no one is to be allowed to know that he is engaged in composition, and, indeed, Mersenne is invited to deceive enquirers both as to this and to his place of residence. We feel that one who acts thus has not, as yet, obtained full command of himself. Life to him was viewed as something outside, something to be weighed and considered instead of being simply lived. Descartes, though he belonged to an era long since past, in this regard was very modern: he carried introspection and self-examination to an almost morbid extent, and this was, doubtless, the result of his psychological standpoint.

There had been a suggestion conveyed through Ferrier, though regarded by Descartes as absurd, that he should travel with the Comte de Marcheville, ambassador to Constantinople. He says that he suspects the suggestion of being a ruse to get him to reply, as he was not acquainted with Marcheville. It had been stated as an inducement to him to go that Gassendi was to be of the party, and this makes Descartes

send a polite message to the effect that five or six years since he would have regarded the matter very differently, but now he was too much occupied in other ways. The expedition appears to have been made without the presence of either of the two distinguished men, though Gassendi seriously considered the scheme.* Descartes was now completely settled in his new home, and perfectly satisfied with his surroundings; therefore, he did not want to quit them. What these surroundings were, it might be worth while to remember; but, first of all, it would be interesting to know something of the standpoint he had reached as taken from his first work of any considerable importance.

* *Corr.*, vol. i., p. 177.

CHAPTER II

THE FIRST STATEMENT OF DESCARTES' SYSTEM OF PHILOSOPHY—"REGULÆ AD DIRECTIONEM INGENII"

DURING the whole of his early life Descartes was deeply interested in mathematical and physical pursuits: he was never tired of seeking the solution of abstract questions, arguing in accordance with his Method, which was gradually becoming evolved, and discussing the uses to which it might be put. He felt, however, that the basis of all knowledge rested in the metaphysical question of what knowledge is—that is, it concerned the discovery of what we *can* know and what we *cannot* know, and he considered that there were certain rules governing that knowledge which it was well to write down, so that they might be thoroughly formulated and understood. In this way, we have that remarkable though incomplete book, arranged as a series of propositions, which (though published in French form at the end of Cousin's edition) certainly belongs to Descartes' early life. The exact time when the book entitled *Regulæ ad directionem ingenii* was written, we do not know: Millet seems certain that it was composed during that time (about 1629) when its author was hardening himself for the future change of climate at some unknown town in a remote part of France.* Anyhow, it was certainly in Descartes' earlier life, for Baillet quotes it constantly as expressing his sentiments at that time. M. Millet has inquired into the question of its origin very fully, and he says that, in Clerselier's

* *Descartes avant* 1637, p. 158 *seq.*

possession originally, it was shown to the authors of the *Logic of Port Royal* in 1661, as is mentioned in that work, and to Leibnitz (who made a copy of it) in 1676: this copy was found by De Careil in the Royal Library at Hanover. It must have been circulated in manuscript through Holland, for Locke appears to have read it when there, but it was not published till 1701 with Descartes' posthumous works. Whether, like Cousin, we place it amongst the first of Descartes' works or not, the book is a remarkable one, and helps us to understand its author's mind as much as anything he wrote. In it we find the system of philosophy sketched out which was to make its author famous, although, as far as composition goes, it is inferior to his better known *Method* and *Meditations*.

Descartes begins his *Rules* by stating that "the end of all study is to enable us to effect a good judgment": many study empirical matters, the nature of plant life, the courses of the stars and the like—the detailed conglomerate of information which we in these days talk of as facts; but "few direct their minds to the development of their intelligence," while yet it is true that to this the study of facts is but subservient.* Probably, in these opening words, we have an exact epitome of Descartes' work. We must not think that a material view of life will satisfy: Descartes was an idealist at heart, even though his idealism may not always seem to be consistent with the interpretation that he gives the outside world. He quite recognised its insufficiency in itself to satisfy our needs. What he calls private, *i.e.*, individual ends, are what divert us most easily from attaining truth; and yet these ends, we must remember, may be praiseworthy in themselves. We study the useful sciences, he says, for the advantages we gain from them in life, or else for that pure joy given by the contemplation of truth. But we must recollect that truth cannot be searched for in the individual science or fact, but only in the knowledge of the whole. This, as Descartes points out, is where he differs from the teachers of the

* Cousin's edition of *Descartes' Works*, vol. xi., p. 202.

Schools. For him knowledge is a living and concrete thing which can find satisfaction in nothing that is limited; and this it is which gives his system the value that it bears even in the present time. For the note of modern philosophy surely is the unity of knowledge, the breaking down of the walls of separation which prevent our seeing how the individual finds its meaning only as forming a portion of the whole. Had this new light not broken in upon us, we might still have been groping amidst the same dull questions that caused such infinite perplexity to the Schoolmen of former days. When Montaigne's influence still remained, and when scepticism everywhere abounded under cloak of an orthodoxy of the lips; when ignorance was openly acknowledged and men professed to bring to bear their judgment all unbiassed on opinions which were balanced as on scales; when all this was so, Descartes' new teaching of certainty, absolute and unconditioned, must surely have brought relief. Dogma, indeed, it may have been and was, but not the dogma of scholasticism.

In this book Descartes shows us how, having got the basis on which we are to build secure, we must follow the Method he so carefully lays down. We must, that is to say, occupy ourselves with that which we can know with certainty, and not concern ourselves with mere conjecture. And where can certainty be found, he asks, but in these principles of geometry and arithmetic of which we are absolutely certain and secure? Here alone do we arrive at knowledge on which reliance may be placed. The syllogism (though he does not rate it highly as an instrument of knowledge) has, in Descartes' view, its uses for the dialectic training of the youth, and he himself, he tells us, was glad to have received the education of the Schools. But to apply ourselves in earnest to the acquisition of true knowledge, we must apply ourselves to the mastery of its rules. There are two ways of setting ourselves to work—the one by methods of experience (or intuition), and the other, in which we are, he considers, much less likely to go astray, by the method of deduction, which, if used at all,

is certain to be used well.* So much being granted, we must be careful to carry out the Method, which means the making certain of each step as we go in our advance towards the formation of our judgment. We proceed either by intuition, the judgment of the attentive mind about what appears absolutely clear and certain, or by deduction, by which from one thing we derive its necessary consequences. These may not be self-evident, and yet be certain if deduced from true and incontestable principles.† However much our faculties have been neglected, we shall still find we have some divine quality within us enabling us to reach the end in view. The mathematical, or, as he says it should be called, the scientific method,‡ is that which produces perfect satisfaction, and this must be followed out by careful, orderly argument, beginning with the simple, and proceeding to what presents difficulty, stopping whenever we do not comprehend. Every one should, Descartes tells us, have at least one careful examination of himself in his life — an inquisition conscientiously carried out.

To Descartes the principal source of knowledge is in our intelligence, but there is a second source in our imagination, and a third in the knowledge coming to us through the senses. It is intelligence that distinguishes truth from error, and the two other modes of knowledge are but its occasions; our interest thus is to know the sources of all knowledge, and not to worry ourselves with vain searchings after the secrets which the future has to disclose; this means that we must study our intelligence, which itself alone can *know*, though imagination, senses, and memory may aid it. The things which are capable of being known may be either composite or simple, and we are shown most fully in the twelfth rule how, in order to have a distinct intuition of even a simple proposition (comparing the unknown with the known, etc.), we must make use of every one of our resources—intelligence, imagination, the senses and the

* Cousin's edition of *Descartes' Works*, vol. xi., p. 207.

† *Ibid.*, p. 213. ‡ *Ibid.*, p. 222.

memory will all be called into play.* For him there are in knowledge always two sides and two sides only, viz., we who are the knowers and that which is the known; we know by means of our four faculties—intelligence, imagination, sense, and memory—while the known is, so to speak, outside, and apprehended as without us: it may be *offered* to us spontaneously, or known by means of something else, or deduced from something which we already know.

Here we have the dualism of Descartes' system that presents so great a stumbling-block to the reflecting mind: it is difficult to see the meaning of these various "faculties" which are set over against the world we know as real, nor do we understand how there can be any relationship between mind or soul and an outside which is void and formless, until, by means of senses, the former somehow comes in contact with the latter. The outside senses are looked upon by him as passive, as what receives impressions as "wax does from a seal,"† *i.e.*, there is in every case a real physical modification of the sentient body; when thus moved, the figure is instantaneously communicated to another part of the body called the "common-sense"; the common-sense acts the part of seal to the imagination, impressing on it ideas which seem at this point to have been converted (how it is so, we ask in vain) from corporeal impressions into the incorporeal. The imagination he, however, regards as still a part of body large enough to be capable of preserving distinct impressions, which indicate the memory.‡ This imagination is contained within the brain, where originates the motive force or nerves, and it moves the latter in every sort of way, as the "common-sense" is moved by the external senses, or as one end of a stick is set in motion by the other. The impressions which cause the movements may be those just received, or others received before, the impressions of which are still existing. This is the corporeal view of the process by which knowledge is

* Cousin's edition of *Descartes' Works*, vol. xi., p. 261.

† *Ibid.*, p. 263. ‡ *Ibid.*, p. 265.

obtained; Descartes, however, holds that that by which we really *know* is spiritual in its nature; it may receive with the imagination the figures sent it by the common-sense, or apply itself to those preserved by memory, or form new ones for itself; it may receive or transmit ideas, act as passive force or active, as the wax or as the seal; it may be sensuous or intellectual—in short, it may do all these things because it is mind or soul.* How the one element is transmuted into the other, or what meaning the one can have for the other, he does not attempt to show us: a universe so constituted of two utterly divergent elements, the one of which is in nowise necessarily connected with the other, is set before us without our having any means supplied us of bringing it into unity. The intelligence may operate by itself if it occupies itself with incorporeal things, but if the corporeal is involved, it must form as distinct an intuition of it as possible; our conceptions may be simple, *i.e.*, so clear and distinct that they cannot be further divided at all, and hence are necessarily true; they may, however, be composite, in which case, seeing that we ourselves put them together, we may err. Intuition, of course, applies to the first, and to all that the understanding ascertains by an exact experience; other truths are ascertained by methods of deduction. All knowledge is equally clear, the only difference in it rests in the nature of its composition.

With this system of knowledge as a basis, Descartes proceeds to direct us to act in accordance with the excellent rules he lays down for reasoning, assuring us that in so doing we cannot fail to arrive at any truth, whether of mind or of extension. He points out very truly, that reasoning (or deduction) does not bring new knowledge; the knowledge that we already have simply tells us that what we seek somehow is a part of the same order of things as that which is already given. Syllogisms and forms in themselves are useless to discover truth: true knowledge comes from our own intuition (a word used, of course, in the sense of

* Cousin's edition of *Descartes' Works*, vol. xi., p. 266.

immediate knowledge, and not in that in which it was used by later writers), or by our comparing one with another, truths intuitively perceived. Thus, modern philosophy pronounces judgment on that which it supplants. In this, which may be called his logic, its author shows us that the dialectic of the Schools never yet succeeded in discovering anything new, and therefore that it is useless, as far as making us acquainted with the truth is concerned, and this brings home to us the difference between the old philosophy and the new. In the former we were occupied in demonstrating truths already known; here, in Descartes' *Rules*, as in Hegel's *Logic*, we have revealed to us how we may discover what is new.

The outside world, or extension, Descartes says, is known in exactly the same way as is the world of thought, and we must apply the same rules in the consideration of both. It is helpful in elucidating the questions brought before us to adopt the form of figures: mathematics, indeed, should be learned simply as a means of giving us practice in the use of Method. Extension, to Descartes, is all that occupies space, and that has length, breadth, and depth—*i.e.*, all that is body and space; it cannot be conceived apart from its subject, and mathematical reasoning, which we apply to it, is, of course, the new reasoning of the Method, with its clearness and distinctness, which are naturally an immense improvement on the old scholastic mode of disputation. Within its limits, we must admit, it gives us, as is claimed, absolutely certain results, and results which are of enormous practical importance. At the same time we must recollect that these limits are deliberately formulated by the mind that lays them down; and that when we pass beyond them and our mental outlook is enlarged, we find that the truths which we have so certainly affirmed may, after all, be no truths at all. It is evident, for instance, that what seems most certain to the man of a low level of intelligence, and what he most confidently affirms to be his distinct and clear "intuition," may very likely appear

quite otherwise to another, or even to himself when his education has raised him to a higher intellectual standard. In the same way the rules for guiding the operation of mind are admirable, and we shall do well to follow them; but it is surely true that the mind makes real progress, not so much through using instruments such as these, as through seeking out the depths and riches which lie within itself.

When we try to summarise the difficulties that occur to us in Descartes' Method, as he expounds it in the Rules, we find that they mainly rest in the impossibility of explaining how mind or soul can be acted on by or act upon the body. Body is passive and inert, devoid of anything which might give it a sense of unity with the spiritual intelligence that confronts it: to bring in the idea of motion does not lessen the difficulty, since motion cannot be expressed without relation to time and space. Now this material which, as yet, we have not been able to define, has to be known by that which is immaterial, and this is what is so difficult to understand. The mind, that which receives the impressions from outside, is by Descartes localised in the brain: the impressions form on some material substance a sort of record, such as the record of the voice as given by the phonograph: these records or impressions may be used at once, or else preserved for future use, and called up at will through memory. Descartes' theory also makes the large assumption that the self is conscious of its own states. In the first place, even were it so, it could have no further universal knowledge. The knowledge acquired, as Hume has pointed out, would be but a contingent knowledge, implying no criterion of Reality or Truth. And secondly, we must ask, How is such knowledge *real* knowledge at all? We may say that the nerves transmit a message to the "common sense" or brain; but even supposing some external influence to proceed to the *sens commun*, from which it is transmitted to the imagination, we are no further forward than before, since still we have simply got the transfer of a certain physical

impression which has nothing in the world to do with mind or with intelligence. And yet, somehow or other, the one must communicate with the other: that is, the physical somehow has to become spiritual by being taken up by mind.

Of course, Descartes did not realise the difficulties into which his dualism would bring him, and, in spite of these inconsistencies, we find in him Thought coming to a knowledge of itself. For we must remember that Descartes takes Knowledge as the one great and important fact, and seeks to discern in it the elements it contains, and this means that in him the modern point of view in metaphysics takes its rise. He finds in Knowledge two elements clearly marked out in separation, the conceiving mind and the perceived object, the knower and the known. The divorce between the two, unknown in ancient times, had reached an acute phase of recent years. Men had discovered a world of Law, the operations of which were absolutely certain and immutable, and which seemed utterly divorced from Mind, and this had to be explained and reconciled with the beliefs of former days. Some men, indeed, did not attempt to find a reconciliation, and scepticism became rife; others, like Boehme and the mystics, found a reconciliation, but in a way that did not satisfy the scientific mind. Descartes accepted the scientific aspect of the world in its completeness, and we have to thank him for putting it before the world so clearly. But he knew that in itself it was insufficient. He therefore applied himself to effect the necessary reconciliation, even if by force; the two sides were made to coalesce as best they could. But though he did not prove successful, he at least prepared the way for others, and showed them that the task was not insurmountable.

To turn from the material side of Descartes' system to the mental, we find that the intelligence forms its own conceptions within itself: that is to say, it has the power of Thought. But when the corporeal is concerned, reasoning is, as we have seen, carried on by

means of Intuition and Deduction (somewhat difficult sometimes to distinguish). That is, our reason operates in a simple way and without following the tortuous paths adopted by scholasticism. Descartes wished, above all things, that his reasoning should be plain and direct, so that it might appeal to all men learned or unlearned alike. He endeavours to show forth from the simple intuition of the truth what is there contained, by using a dialectic process. That is to say, he seeks for proofs, not from without but from within, and this he does by showing what is involved in any simple fact, such as that I *know*. All knowledge is equally true if it is knowledge at all, and Descartes believes that there are certain innate truths from which all others are derived. Some of these we might in later days have called the categories through which we view the world, but they are not conceived as such by him, or at least they are not taken as universals. He abstracts from the richness of concrete reality, and separates up his knowledge into different portions by a process of analysis. Thus, instead of looking into his own experience for the reality which he was seeking, and discovering how that experience could be found to embrace within itself all the elements which he desired, he set himself to look for them as from afar, or as completely separated off: and having done so, he tried to bring them once more into unity. The separation was so thorough that such unity could not be obtained, and Descartes was left with a theory of knowledge that did not seem much less abstract than the scholastic system that he had condemned. But this was not really so, for the divorce between the mind and the object-world of experience was, if only a phase, a necessary phase. Until men realised their outsideness, and got beyond the child-like simplicity of a life in which nature and mind are not conceived of as otherwise than one, they could not reach their true reconciliation. That reconciliation is not, as Descartes imagined, attained by showing how the two sides, either of which is complete in itself (knowledge derived from pure conceptions on the one hand, and the senses and their

perceptions on the other) can be somehow brought together, just as in modern days men have attempted to bring together or "reconcile" the religious with the scientific outlook. It is achieved by showing that experience is large enough to contain both sides within itself, and that we have only to think it out, to discover how absolutely impossible it is to separate the two, excepting provisionally or by abstraction. We as individuals in our finite knowledge are only fully comprehended when regarded in the light of the higher plane of Mind, but we should never have come to know how much our individual knowledge implied, had we not first brought clearly before ourselves its abstract individuality. Thus Descartes' scientific outlook had an immense value, both as regards its practical utility in dealing with what is mechanical and limited, and what, while we remember its limitations, can best be dealt with as such, and also in reference to its own function as a stage in the development of a true conception of things. If this side led necessarily to materialism with its value and its limits, the other side, which takes mental conceptions, and instead of revealing to us their depths, deprives them of all content, leaves us with a barren outlook. Descartes, in reaching the conception of "simple" natures, thinks that he will make it easier to arrive at some new knowledge. But his conception is empty, as is that of those who seek the Nirvana, or who, like Spinoza, find the solution of all contradictions in a theory of absolute identity.*

* There is another interesting little fragment written by Descartes on similar lines, and published in the same volume in Cousin's edition, entitled the "Search after Truth by the Light of Nature," which takes the form of a dialogue between a gentleman and his two friends, one of whom had attained to a considerable amount of learning, while the other regarded the questions being discussed in the light of simple common sense. Indeed, part of the teaching of the conversation would appear to be that much time may be wasted on mere study, though study is necessary to show us where we err. The main aim of the work, however, is to show that the conception of self-existence is at the basis of all knowledge, and that when all is doubted, including all sensations, the thought that it is the "I" who doubt, remains.

It is clear that now Descartes' *Meisterjahre* have been reached: he has arrived at the modern standpoint which has been that of scientific knowledge ever since his day. Hitherto, men had been accepting this theory or that, learning what is true from books and trying to reconcile their facts with theories of bygone days. Bacon called them to seek out for themselves, not alone in books, but in nature as she manifests herself; he urged them to draw conclusions from experience. But Descartes shows how this may be done in philosophic form. He has arrived, he thinks, at the top of the mountain of difficulty: at anyrate, he has risen to a platform whence he has got a new view of the world which shows it not alone as One, but also as One which is capable of rational interpretation. It comes to him no more as a confused mass of various sensations, emotions, and experiences, but as a unity to which he has the certain key; and if men do not step into the kingdom ready for them, the fault is theirs. During the next twenty years of exile, he was to do little more than work out the system projected in his unpublished work. It signifies an important contribution to philosophic thought, and is in great measure the basis on which his other work was founded.

CHAPTER III

LIFE IN HOLLAND, 1630-1637

We cannot understand much about the circumstances under which Descartes was living without calling to mind something of the history of the country in which he dwelt: a short sketch of this may not therefore be out of place.

On the death of Maurice, Prince of Orange, or soon after, his brother, Frederick Henry, was appointed Stadtholder by the States of nearly all the Provinces. He, like his brother, possessed great military knowledge, which in his case was combined with greater prudence and capacity for government. There was, in fact, a certain revulsion from the persecuting spirit that had of late obtained; the counter-Remonstrants or Calvinists were themselves alarmed at the power they had acquired, and the Arminians hoped for better things. That blot upon the memory of Maurice and his party—the death of the noble John of Barneveldt—could not but bear its fruit in a reactionary movement, and in a sense of shame on the part of those who truly loved their country. The Remonstrant clergy had been shorn of all their benefices, and those who refused to abstain from preaching were banished from the land. The professors at the University of Leiden were displaced, their posts filled with Calvinists, and the pupils who refused to subscribe to the canons of the synod held at Dort were summarily expelled. While Lutherans and Anabaptists were permitted to worship on equal terms with Calvinists, and the Catholics and Jews might hold

their assemblies privately, fines, imprisonment, and banishment, were exacted with all severity against Remonstrants. But such punishments did not have the desired effect. Men insisted on worshipping God according to their consciences: they took refuge in the fields and woods; some quitted the country and some even fled to Antwerp, the dominion of the archdukes and the ancient stronghold of religious persecution—a strange refuge for men belonging to a nation where existence was based on religious liberty.

The internal dissensions long continued had naturally reduced the Province to a state of weakness, and on this account the archdukes had endeavoured in 1621 to renew the truce now drawing to an end; this proposal was, however, rejected, and the war was recommenced, though under very different conditions from the time when it was concluded. Other nations were occupied with their own affairs, and the Provinces were left almost single-handed to contend with the House of Austria. In 1624, however, a treaty was concluded with France, in which aid was promised on account of Richelieu's conviction that the Provinces should be made a barrier against the increasing power of the House of Austria. James's negotiations with Spain having failed, he was disposed to form an alliance also, but Maurice's fortunes appeared now to have deserted him; he failed in relieving Breda, besieged as it was by Spinola. Barneveldt was no more present to help with wise council and the necessary funds, and anxiety added to the illness which soon carried him away; his selfish ambition had indeed proved his bane, and hidden from view his otherwise great qualities and prowess.

The sieges of Bergen-op-Zoom and Breda had reduced the resources of the Spanish army, and its efforts now were somewhat isolated and intermittent. In 1627 Frederick Henry succeeded in taking Grol. At sea, the Dutch were everywhere successful. The West India Company's fleet captured the Spanish treasure returning from America. But on land the war between her principal allies, France and England, placed

the Provinces in a difficulty, and the King of Spain once more hoped for the establishment of a truce. Any advances, however, were at once repelled. Spinola was in Italy, and Frederick Henry was induced in 1629 to undertake the siege of Bois-le-duc, situated though it was in an almost impregnable position. He constructed his works with great skill, and the Spanish commander, unable to assist the town, marched to attack the Provinces; it was only by laying waste the land, and flooding the whole country from Utrecht to the Zuider Zee, that the Spanish advances were repulsed. The invaders naturally caused the utmost consternation to the people, and it was with difficulty that they were repelled, and that Bois-le-duc was brought to surrender. In 1630 corn was dear; some of the Provinces did not pay their contribution toward the war expenses, and no army was brought into the field. Abroad, however, their success was great and trade with the West Indies promised to flourish. In 1631 Frederick Henry failed in his attempt to attack Dunkirk (the rendezvous of pirates who rendered navigation unsafe), but gained another naval victory over the Spanish enemy. It was a token of gratitude for this that Frederick Henry's son William, born in 1629, was granted the reversion of his office as Stadtholder.

The prince's moderation encouraged the Arminians to return from their places of retirement, and once more to hold assemblies for their worship even while the clergy and the States advocated the renewal of the decree against them. The prince played one party against the other, and finally permitted Episcopius to teach theology, and Vossius and Barlæus to be made professors, but the feeling naturally continued to be very bitter. Internal differences were compensated, however, by the campaign against the Spaniards, which opened successfully in 1632, when Gustavus Adolphus's victories drew off a large proportion of the Spanish forces to the assistance of the emperor.

The striking point in the history of the United Provinces is, that in the midst of war with a great power

without, and religious dissensions within its borders, the country prospered in a quite extraordinary degree. The telescope was invented in 1608 by an optician of Middelburg; in 1609 the famous bank of Amsterdam was instituted; trade in the northern seas was brisk, and whale-fishing was carried on; discoveries of new territories were made; colonies were founded frequently for the acquisition of trade and commerce rather than for the mere possession of more land. The West India Company was given the sole privilege of trade from the tropic of Cancer to the Cape of Good Hope, and from the South of Newfoundland to the Magellan Straits. In every direction, evidence was given of prosperity within and activity without the limits of the low-lying country: men lived simply, traded in all parts of the globe, but consumed few of the luxuries brought from the other ends of the earth; there was none of the vulgarity which usually characterises a prosperous trading country, unless it were the vulgarity of seeking to possess for possession's sake; contributions for the necessities of the State, or for beautifying the cities, were never lacking. In their particular form of art the Dutch have had no rival, and they painted, as they lived, simply and truthfully; their ideals might not be very high, but the ideals that they possessed were never absent from their minds. Theology was a profession by itself, but literature was regarded as a pastime, and men of letters associated in their daily occupations with their fellow-citizens: in this region Holland holds an honourable place: the names of its celebrated men, such as Heinsius and Grotius, are fresh to us to-day.

Descartes had chosen wisely the place of his abode, however strange his decision might have seemed to those he had deserted; he was free to live his own life as he wished to live it, and yet, besides having liberty, he was surrounded by an inspiring and invigorating atmosphere. Even Balzac, whose very existence we should have expected to depend upon society, envied, or professed to envy, the circumstances of his friend. Descartes' letters to his Parisian friend are interesting

in many ways, but specially as showing that he felt himself bound, in writing to so great a master of style, to do so in the manner of the school to which he belonged. Most readers will, however, agree in preferring the clear, simple composition which was natural to him, and which could afford to rid itself of artificial embellishments and affectation. Descartes tells Balzac of his change of life, mentioning that he had never been tempted to return from his exile until he heard (this in truly "precious" style) of Balzac's being in Paris and how he was missing his conversation and the thoughts that he gave utterance to. So much of a philosopher has he become, he says, that he has ceased to regard what is usually regarded, and is now concerned with other things, respecting which he fain would talk with him. He declares that he has no idea of writing at present, content with enjoying the peace of a dwelling where he sleeps ten hours, has charming dreams, and wakens perfectly happy. Balzac's reply, which, of course, is in his most ornate style, gives the astounding intelligence (perhaps not quite serious) that he would like, above all things, to visit Amsterdam, and "embrace that dear head so full of reason and intelligence"; "he cannot be the companion of his work, but at least may be the spectator." In spite of his knowledge of his friend, Descartes appears to take him seriously, says he understands his disliking the restraints of court life, and talks of his resolution as one sent from heaven : even country life, to his mind, leaves much to be desired, owing to tiresome neighbours and other drawbacks, while at Amsterdam he himself "is the only man not engaged in merchandise" (this throws a light on the life of the time), "and can live unseen." The work of the people also interests him and is for his use; all the treasures of the world are brought to his door, an army is mobilised, and yet the country is most peaceful, abiding "in the innocence of olden days." It is hardly necessary to say that even these attractions were not sufficient to tempt the popular and fêted Balzac from his home.*

* *Corr.*, vol. i., pp. 203, 204.

Descartes' projected journey to England was never executed, but it would appear from the considerations pointed out by the editors of his works, that, contrary to the account given to us by Baillet, 1631 was very likely the year in which he took his journey to Denmark with M. de Ville-Bressieux.* The latter had worked under Descartes since 1627, and had made great advances in mechanics, and in the study of perspective. He seems to have produced optical effects of various kinds, being of an ingenious turn of mind, and to have in this way assisted his master, who was now working at the *Dioptric.* Unlike Ferrier, De Ville-Bressieux was a grateful pupil and a most admiring one, perhaps too admiring for his instructor's good. Whether by his own efforts, or through Descartes' means, he made quite a number of inventions, a portable boat, a rolling bridge for purposes of entering a town surrounded by a moat, and, above all, what we should call an ambulance for moving wounded soldiers, then named a "chariot chair." In these matters he appears to have shown great practical skill and power of applying scientific principles. He was proud of being shown his master's experiments in dioptrics, and he occupied himself in polishing and cutting glasses in the forms prescribed, and tells us of optical illusions brought about by means of reflecting mirrors and toy figures.

This useful assistant Descartes took with him to Denmark and North Germany, but of the journey we know almost nothing. The two went to Eastern Friesland, stayed some time at Emden, where De Ville-Bressieux made a perspective drawing of the town hall, which, he tells us, Descartes highly praised. From Emden they passed on to Hamburg, and during the voyage Descartes instructed his friend in scientific matters, from which we judge that both must have been good sailors. One of his sayings that specially struck De Ville-Bressieux was, that since "the science of mechanics is none other than the Order imprinted by God upon the face of His work, which we commonly

* *Corr.*, vol. i., p. 210.

call Nature, it is better to regard the great model than the maxims and rules of men arrived at in their studies." *

Descartes left his companion in Denmark, and on his way to Amsterdam visited at Dordrecht his former friend Beeckman, now old and ill, and with him he appeared at this time to have become entirely reconciled. On returning to Amsterdam he wrote to Bressieux, telling him that he would find him in his quarters at the "Old Prince," and that he had arrived in good health; in this letter he also urges (perhaps with reason) accuracy of method and ridding the mind of common superstitions. De Ville-Bressieux was certainly a devoted disciple, who followed his master in spite of all difficulties, and whose residence with him during some years appears to have given mutual satisfaction. He appears to have returned to Descartes later on, and accompanied him to France on his first journey there.†

In addition to those letters to his assistant, Descartes wrote as usual during the year to his friend Mersenne on scientific subjects, such as that of vibration in relation to sound, and the occasional pleasure given by discords. In the autumn of 1631, however, he speaks of not having looked at his papers for three or four months, and as having done little useful work,‡ and this interruption points to the voyage to Denmark, and also to an indisposition which probably induced him to make the expedition, for he writes of returning in good health.

In 1632, however, Descartes set himself to work with renewed vigour. We find him writing respecting the problem of Pappus, which was dealt with in his *Geometry*, and which, according to Leibnitz, caused Descartes to think more highly of the analysis of the ancients: § he also described a method of verifying experimentally the law of refraction. In April 1632 he writes to Mersenne about his promised treatise, now

* Baillet, vol. i., p. 260. † *Ibid.*, vol. i., p. 233.

‡ *Corr.*, vol. i., p. 228.

§ *Remarques sur l'abrégé de la Vie de M. Des Cartes*, iv., 316.

nearly finished, though in want of some revision, and the figures which it troubled him to draw. This was *Le Monde*, of which we hear so much later on. In replying, Mersenne sent him a treatise by Vieta which he had not seen. He talks of passing the summer in the country, which meant his going to Deventer, and meantime asks if Mersenne knows anyone with means who would take the trouble to describe the Heavens and all its phenomena in Baconian system. In May he appears to have gone to Deventer to be near his friend and disciple Reneri; there he meant to work hard until his *Dioptric* was completed. The *Monde* was also, he says, proceeding, and he had but to add to it something concerning the nature of man; but he must make no promises regarding the time of its completion. At this period the refraction of sound and light was concerning him greatly, and, curiously enough, he did not appear to have known what had been done by others, and more especially by Snell, in connection with the latter:* the discussion of other mathematical problems such as the trisection of the angle, appears to have been carried on just as in his Paris days. In the midst of all these interests he begs his friend to disabuse people of the idea that he is doing more than occupying himself with fencing. Incidentally he makes the remark that he pities the author who proves the immobility of the earth from astrological reasons, as he would pity the century if the belief were to be established by reasons such as these.†

Two epoch-making books appear about this time to have come to Descartes' knowledge, Galileo's *Massimi Sistemi* (of which Mersenne seems to have written, and respecting which Descartes also wrote, before he knew the influence its fate would have upon him), and Harvey's treatise on the *Circulation of the Blood*, of which he asserts that he had not seen it before writing on the subject in the *Monde*, although it was published in 1628, and was known to Gassendi next

* *Corr.*, vol. i., p. 257. † *Ibid.*, vol. i., p. 258.

year.* He was busied, as usual, about his various interests, and he had planned to make his long-delayed book a New Year's gift for 1634 to his friend Mersenne, when a bomb fell which shattered all his plans. He had made inquiry at Leiden and at Amsterdam as to whether he could procure Galileo's treatise, which had been published the preceding year in Italy; he was informed that this, indeed, was true, but that all the copies had been burnt at Rome, and the author sentenced to make the necessary amends. This news was so alarming to him, that he resolved to burn his papers, or at least carefully to conceal them, since it was clear to him that the accusation could be none other than that of trying to establish the movement of the earth—a doctrine which had, indeed, been previously censured by the cardinals, but which, he understood, was now publicly taught even in Rome. If this were to be condemned as false, then, Descartes says, his philosophy must also be so. This particular point could not possibly be eliminated without destroying all, and nothing would induce him to go against the teaching of the Church. After all, he told himself, he had no great reason to write at all, excepting his promise to one or two friends, who would acquit him of his debt; his readers might well be glad to escape being called upon to read what would lead them into falsehood. And then he falls back on the old doctrine of moral cowardice, that many things in philosophy are controversial, and if his writings are the same, he had better not attempt to publish them; in the meantime, he would consider the matter for a year, and get further information about Galileo.†

To us in the twentieth century, Descartes' attitude is hardly comprehensible, but we must try to place ourselves in his position, and realise what ecclesiastical condemnation meant to him and others of his time. It was not, we must remember, the condemnation of an outside and senseless power, which flew in the face of

* *Corr.*, vol. i., p. 263. † *Ibid.*, vol. i., p. 270 *seq.*

reason: it was the solemn condemnation of a great and powerful hierarchy, which meant the condemnation of those for whose opinion Descartes most cared, of his friends, his teachers, and his disciples. The training of La Flèche had not been forgotten; in the midst of his really revolutionary teaching he was a dogmatist at heart, and his dogma included a certain theological system, which to his mind, at least, had a close connection with the interpreting power of the Church. In the *Method*, he speaks of the inquisitors as those "whose authority over my actions is hardly less influential than is my own Reason over my Thought." * In the midst of the scepticism which is said to have undermined Parisian life, Descartes held to a clear-cut doctrine which he had definitely made up his mind must somehow be introduced to and brought to tally with his other teaching. How his views were made to consist with his clear, distinct conceptions of things, we are not concerned to know; but we need not doubt that he believed it at least to be a possibility. That there was moral weakness in Descartes' attitude, we must certainly allow. Other men had held their ground and faced the consequences, but they were made of different metal. It was not long since Giordano Bruno had suffered at the stake the severest penalties of the law. But Descartes was not of the stuff martyrs are made of; he even seems to have had, by nature, a physical dread of death. His interests were intellectual, and he was a scholar much more than a reformer; he was a striking example of that often demonstrated fact, that the most thorough-going changes are often wrought by those who think and impress their thoughts upon their fellow-men, rather than by those whose actions are the talk of centuries. The work of Descartes, despite his miserable change of front at the instance of a great and influential body, was done most thoroughly: the lessons he taught were learned, and men knew that any apparent inconsistency was irrespective of his great doctrine of searching for the perfect Truth, and took it

* *Method*, p. 60.

in the cynical spirit which we are apt to imagine characterised himself.

The story of Galileo, well known as it is, is worth recalling to mind. In 1616 he had bound himself to abstain from teaching the false doctrine. But he was half-ashamed of the position forced upon him, and his *System*, written in 1632, while a *soi-disant* defence of the capacities of his judges, was really a vindication of his opinions, and this was soon discovered. He appeared before the Holy Office, and was condemned in June 1633; his book was burned, and he was forced to abjure his error verbally and in writing, and to promise, on his knees, to say nothing contrary to this ordinance. Besides this, he was kept first of all in strict confinement, and finally under surveillance, and obliged for a period of three years to recite weekly the seven penitential psalms.

In some respects Descartes was but following in Galileo's footsteps. We cannot but feel, however, that Descartes' reasons for concealing the truth were very different from the great Italian's. He was living in comparative safety; and to us excommunication does not seem so very terrible a fate, although we may not realise what it meant to one who clung to orthodox traditions as did Descartes, real iconoclast though he may have been. We remember how another great thinker, Benedict de Spinoza, who was born just about this time in Amsterdam, and who was proud to acknowledge himself a Cartesian, faced much worse than this without flinching, though poverty and hardship followed him through life. But Descartes did not possess a moral calibre such as his, nor did he profess to do so. In this instance, for example, he is careful to ask how the matter is looked upon in France, seeing that to his knowledge the Pope and Council had not ratified the Inquisitorial decree, not that he is "sufficiently enamoured of his thoughts to count on such methods of escape."* He "seeks but repose and tranquillity, which can only be possessed by those without animosity or ambition." Mersenne told him of an

* *Corr.*, vol. i., p. 281.

ecclesiastic who was still about to publish a treatise to prove the movement of the earth, and Descartes, possibly half-ashamed, volunteered, to the writer's joy, to assist; but, sad to say, he later on retracted, after reading of the condemnation at Liège of a relative of Galileo; for it appeared that it was forbidden to make use of the Copernican hypothesis even in pure astronomy. Descartes wished to live on in repose, taking as his motto, *benè vixit, benè qui latuit*, and cynically says that he is more "happy to be delivered from the dread of acquiring more acquaintances than he desired through his writings, than sorry to have lost the time and trouble occupied in composing them."* But in such matters Descartes was not always accurate, for so soon as 1635 he announces that, having entirely set aside his *Monde*, he is going shortly to print his treatise.† His old friend Beeckman, with whom he was now at peace, lent Descartes Galileo's book from a Saturday to a Monday in 1634, long after its condemnation, and he speaks of it, as usual, somewhat slightingly, and as not containing much that is original: he allows, however, that he "has met with some of his own reflections," more especially those regarding the law of falling bodies. This contempt for the works of others was, we may fear, somewhat characteristic of the man.

The much-talked-of *World* or *Cosmos* was a summary of all Descartes' Physics at the time of writing. In the *Method*, we are given a sketch of the writer's views, and an explanation of the mathematical methods of demonstration which he proposed to use. "I wish it to be considered that the motion which I have now explained follows from the very arrangement of the parts, which may be observed in the heart by the eye alone, and from the heat which may be felt with the fingers, and from the nature of the blood as learned from experience, just as necessarily as does the motion of a clock from the power, the situation, and shape of its

* *Corr.*, vol. i., p. 286. † *Ibid.*, p. 322.

counter-weights and wheels."* The operations of nature—of the heavenly bodies in particular—are similarly described on mathematical priniciples—that is, the Method is applied to a preconceived theory, in order to deduce the phenomena which are manifested in the world. Naturally—the theory being what it is—the results are strange to us, and we are apt for this reason to discard the whole system as absurd, and as the work—as indeed it was—of an immature mind. It is a strange blending of the ancient and the modern points of view: we have Harvey's new doctrine of the circulation of the blood and the Copernican system, both acknowledged as true, but mingled with the antiquated theories of the day. We have not much by which to judge the original work, it is true. From time to time Mersenne urged the publication of the original manuscript, which, we learn from the *Method*, must have included much more than we now possess. In the *Method*, we hear how Descartes' object was to explain what would happen in a new world, if God were to create one, and agitate the various parts of matter, so that there came to pass a chaos as "discordant as the poets ever feigned," and then nature were permitted to act as she would according to His laws. Matter must dispose itself, we are told, according to the fashion which Descartes, with his mathematical principles, allowed; and since everything is capable of deduction, his delight was to explain how the results which followed were absolutely fixed and certain. Then in his own strange manner he suddenly adds, "I was not, however, disposed from these circumstances to conclude that this world had been created in the manner I described; for it is much more likely that God made it at the first such as it was to be."† The Ptolemaic system Descartes could not possibly defend, seeing that it is "manifoldly opposed to experience"; but though other motives may have influenced him, we may give him the credit of honestly believing that the earth very likely moved more after the system of Tycho Brahe than in the Copernican method, as it was ex-

* *Method*, p. 50. † *Ibid.*, p. 45.

plained (unfortunately, he would say) by Galileo. There is a sense, he believes, in which we can still truly say that the earth does not move, just as a passenger may not move while yet carried onwards in a vessel; and if this view were taken, the Bible difficulty could easily be got over. The idea of the motion of the earth, as in its sphere and carried along in the celestial ether, might prove a happy method of evading censure by everybody, including even the liberally-minded Pope. But we do not hear of Galileo reverting to such far-fetched ideas in order to escape his punishment, and others dared still to assert their views. Many of the opposite camp, on the other hand, Lutherans and Calvinists, found themselves for once in sympathy with the inquisitors, and this was a satisfaction to Descartes, who thought the result produced might be opposite to that intended. But though ten years later, in his *Principles*, he ventured to assert the modified form of the once-hated doctrine, before that time he is almost abject in his expression of devotion to the Church, of whose infallibility there is, he assures us, no possibility of doubt. A Cardinal, perhaps his old friend Barberini, was consulted as to what position he could meanwhile venture to take up. If he had Rome and the Sorbonne on his side all would be well, but without them he would venture nothing.*

Descartes would not even send the manuscript of the *Monde* to Mersenne, whom he probably could not trust to keep it from the public view; and finally, in 1637, he writes to Huygens that he has sent it far away, in order that nothing might tempt him to consent to give it up.† He had told Mersenne that it would not appear for a century after its writer's death. Later on he did, indeed, begin to translate it into Latin, but the effort was too great, and we have but the abridgment left to us. Where the original is, we cannot tell. Some friend—possibly an ecclesiastic—may have got it to peruse, and it has, with him, probably disappeared for ever.

* Baillet, vol. i., p. 253.

† *Descartes avant* 1637, par J. Millet, p. 294.

Descartes' correspondence at this time with his friend Wilhem and others throws much incidental light upon his thoughts and doings. He sends good advice to the valet Jean Gillot, describes the Court of the Prince of Orange, frequented by Wilhem as counsellor of state, as one of the most polite in all Europe, and writes of his family as all possessing the rare and excellent qualities so much admired in his brother-in-law, the father of the famous Huygens.* The spring of the year 1634 found him back in Amsterdam again. At Deventer he had enjoyed tranquillity enough, since Reneri was his only friend. But the solitude was too great even for such a recluse as he. His letters to and from Mersenne seem to have failed to reach their destination, and he suspected the carrier of having been guilty of their loss. After several letters had so gone astray, he advises writing nothing of importance, since the writing might be recognised and the letter stolen; hence he considers it would be safer to send the letters in merchants' packets, as evidently the place was too remote for posts to be quite reliable.† Descartes appears, subsequently, to have visited the French ambassador, Baron de Charnassé, at the Hague.

It was in 1634 that he sketched out the work *De Homine*, which twelve years later on he recast for the Princess Elisabeth of Bohemia, daughter of the Elector Palatine, who had not long since died. This book, of course, set forth the results of his researches in anatomy, which he was diligently carrying on, and of which we shall speak later. About this time there was a change in the fortunes of his most faithful disciple M. de Reneri, who was Descartes' main attraction to the little town of Deventer. Utrecht had possessed a

* Wilhem's wife, Constance Huygens, was much esteemed by Descartes. He was in the habit of asking with deference, Bayle tells us, what she thought of the new ideas in philosophy. Descartes at this time heard of a clock of a surprising nature, and one cannot but imagine that it may have been the pendulum clock invented by Huygens' son, though this was not perfected till 1657.

† *Corr.*, vol. i., p. 292.

college of its own in this age and land of learning, and now it determined to make this college into a university, funds as usual having been liberally supplied. Reneri was at once fixed upon as one likely to be an ornament to the professoriate, and he had amongst his colleagues Gisbert Voet or Voetius, the theologian, and Henri Leroy or Regius, a professor of medicine, of whom we shall hear much later on. Reneri's appointment at the very commencement of the university meant much to Holland, for now, for the first time, the Cartesian system was to be publicly taught, and the battle royal was to be commenced between Descartes' adversaries and his supporters. Reneri had at Deventer been drinking of this new doctrine from the source, and he appears not only to have understood its meaning, but to have taught it with prudence, avoiding undue exaggeration; in this way he escaped the trouble which befell his colleague Regius. He doubtless was an apt and devoted pupil, but not a man of any originality of thought.

Descartes writes to another friend, or one who was so at the time, Morin, professor of mathematics at the College of France, who sent him his book on Longitudes. Morin, who does not seem to have been a man of any mark, maintained a system of finding longitudes by means of the moon, and this was unsatisfactorily reported on by the government authorities, who had offered a prize for any satisfactory means of determining the same. Descartes, in this letter, somewhat bitterly complains that an artisan who could make tolerable glasses would be better recompensed than would he be in his scientific speculations. Mersenne, of course, continues to be Descartes' chief correspondent; to him, everything is recounted and all his anxieties confided, and to him he writes, in 1635, in reference to his researches on snow, with which, Baillet tells us, he was this winter busy. Mersenne was also consulted as to whether Gassendi was likely to give him more assistance than Kepler. The result of these studies appears in the work on Meteors.

Amsterdam had not been entirely a success as a

place of abode. Disturbances were numerous, and Deventer was again resorted to. But, according to Baillet, it did not altogether satisfy the philosopher's requirements either, and again he took up his abode in Friesland, this time at Leeuwarden, not far from Franeker, where he was before. This, at least, is what Baillet tells us; but Descartes' letters in the spring of 1635 were dated from Utrecht, where one fancies he would be attracted by the presence of Reneri his friend, and it seems unlikely that he lived at Leeuwarden at all. The dates of letters are not, however, altogether reliable as indicating where he really was.

In the summer of this year, at Deventer, a great joy came into his life, though it proved of short duration, in the birth of a little daughter. We do not know who Francine's mother was, beyond the fact recorded in the Baptismal Register that her name was Hélène. Probably she belonged to Amsterdam, where Descartes lived with her. He never married her, although he frequently acknowledged himself the father of her child. She may have been of a station unequal to his own, for later on he proposed to send the child away from home for purposes of education. She was baptised at Deventer on 28th July, according to the old style obtaining in the country, ten days after birth.

A friendship which Descartes made at this time was that with De Zuytlichem or Constantin Huygens, the father of a more famous son. Golius, the mathematical professor at Leiden, had introduced him to Descartes: and a correspondence followed in which the one writer cannot say too much that is flattering of the other. Even Jean Gillot, the valet, is esteemed by Huygens, because he had recognised the merits of his master. He advises Descartes as to the best methods of publication, and is told in return much about the progress of Descartes' work. In speaking of the latter, Descartes says that "More people are able to bring philosophical speculations into mathematics than can bring certainty and mathematically-demonstrated propositions into

philosophy."* This, of course, was his own constant and never-failing endeavour, to make his philosophy as certain as his geometry, and no mere speculation in the air. Huygens appears to have been a really remarkable man; besides his interest in science and in learning, he held office under Prince Frederick Henry of Orange, and was present during his campaign against the Spaniards in 1635. Baillet tells us that it was at his instigation that Descartes wrote his little work on Mechanics in 1636, as a sort of preliminary sketch to be worked out later on.

While journeying from Friesland to Amsterdam this year, Descartes was deeply interested in seeing, one misty night, on the Zuider Zee, two crowns or halos around a candle brought into the half-dark room. These candle halos had long since interested and puzzled him, and he explains their origin from the humours of the eye. But at all times in his correspondence there is a tendency to turn back to the old and dangerous question, the movement of the earth. He cautions an unknown correspondent, perhaps Mersenne, about the prudence of supporting the theory, apparently with some result, for Campanella was the first to do so, and that was two years later.† A treatise on glasses had been revised and finished, and this he thought of publishing alone, but someone else was working at the same subject, and Descartes offers to send him part of his manuscript; what remained was probably incorporated with the *Dioptric*. It was a remarkable, and at the time an unusual, trait in the character of an investigator, to be ever ready to share the results of his investigation with his fellow-workers. Nearly every discovery Descartes makes is fully discussed with others. About this time Isaac Beeckman, Descartes' friend, though once his enemy, passed away; he kept up to the end his rela-

* *Corr.*, vol. i., p. 331.

† Mersenne, however, twice planned undertaking Galileo's defence, and once carried it out in a small treatise published in 1634. The later project was abandoned.

tions with the old man who had so early discovered his genius.

We have very little information about the occurrences of the year 1636, and yet we are coming to what was, so far as outside evidence goes at least, perhaps the most important portion of Descartes' life. For now he was gradually being forced to the conviction that publish he certainly must. Eight years of serious study had passed since he retired to the solitude of Holland, and lived practically as a hermit. But besides that, he was now forty years of age, and he had no longer the excuse of youth and immaturity. If he were ever to reach definite opinions on the subjects of his study, surely he should have done so now.

In August 1637, while at or near Alkmaar—possibly at Egmond, Descartes writes to a friend (very likely, his editors consider, Cornelis van Hooghelande of Leiden, who occupied himself with medicine, and to whom he confided matters of private importance) requesting him to get "Hélène" to come to him near Alkmaar as soon as possible, and bring his child, whom he calls his niece, along with her: at the same time his friend was asked not to send his servant to give this message, but to delay until Hélène called.* His own landlady had accepted the idea of the presence of a child with equanimity, but it is difficult to understand in what capacity the mother would appear. However, this child meant much in Descartes' life, and her young life may have made him feel that he could not longer live entirely for himself, but must do for her sake what he might not have done entirely for his own, and make the results of his studies known.

This, however, is anticipating. In 1636 he tells Mersenne that he was on the point of printing, and he had come to a town—evidently to Leiden—with this in view. In Holland, at that time, the publishers who would at once suggest themselves to anyone who wished to bring his work to light, were, of course, the Elzevirs; Bonaventure and Abraham, uncle and nephew, the

* *Corr.*, vol. i., p. 393.

original members of the firm, lived in Leiden; the nephew Louis started business later on at Amsterdam. The Elzevirs had, at one time, made advances to Descartes, but now they seemed to have become less friendly, and Descartes, not appreciating the position of suppliant for their favours, resolved to go elsewhere. Hence he asks his friend whether his work could be published in Paris, stating as a drawback that his writing was bad and his figures ill-drawn; also that spelling and punctuation required revising. But on his side he demands that the type and paper shall be of the best, and that he shall receive for himself at least two hundred copies for giving to his friends. Probably this was all the remuneration he expected; none other seems to have come to him. The treatise was to comprehend the Dioptric, the essay on Meteors, the Geometry, besides the Method, so that we cannot wonder that the publishers were doubtful of undertaking so large a work, especially as it was to be anonymous. Mersenne was once more warned as to letting the project become known to any excepting the publishers whom he must consult, and who were not to be correspondents of the Elzevirs. Finally, as it appears later on, he published, not with the celebrated Elzevirs, now risen to the zenith of their fame, nor even with a Parisian publisher, but with Jan Maire of Leiden, who brought out his book in somewhat shabby form in 1637. The proofs appear to have passed through Huygens' hands, for he complains somewhat of the paper and margins in a letter early in 1637, while lauding in the most high-flown style the matter which was within.

Jean or Jan Maire had obtained a special privilege or patent from the United States in 1636, but Descartes, in the extremity of his caution, deemed it wise also to obtain a permission from the King of France, and in May 1637 this was obtained, not only for this work, but for all else he might in future see fit to publish. The complimentary nature of this privilege, and the flattering terms in which it was conceived, were, probably, very justly ascribed to the zeal and affection of his devoted,

but fussy friend, Mersenne. This kindness had its other side, for Mersenne was almost obliged to show the work to others, and to announce the name of the author in spite of all his constantly repeated injunctions. Descartes had only desired permission to print this particular work, and thought that in demanding a general license he was placing himself on a level with an ordinary bookseller or publisher requiring protection from rival firms; besides which his chance of getting his simple request granted was truly being endangered. He wrote angrily about the matter, and he was also vexed with Mersenne for his somewhat petty criticism on the form of his work, and the motives which might be imputed to him. But Mersenne's criticisms and actions were well-meant, and Descartes, when he found that his letter had given him pain, at once wrote to ask pardon and assure his friend that he was only complaining of his too great zeal on his behalf, and that he meant to impute no evil intentions to him; on the contrary, he felt real gratitude for all his efforts.*

Jean Maire at last got back his proofs from those who had been given them to read; the privilege was given in the most satisfactory terms, and after the very ample apology made the aggrieved author, relations were once more happily established with Mersenne. Fresh difficulty, indeed, seems to have occurred when Descartes found his name openly placed in the *Privilege* after all his instruction. He did his best to suppress it, but when the time for sending presentation copies came, he found it impossible to keep the matter dark and thought it best to avow the authorship.

The book was issued in quarto form on 8th June 1637, under the somewhat altered title of *A Discourse on the Method of rightly conducting the Reason and seeking Truth in the Sciences. Further, the Dioptric, Meteors, and Geometry, essays in this Method*—a title which was less aspiring than the first, which had professed to supply a universal science. As he told Mersenne early in the year, the *Discourse* was not a "Treatise," being

* *Corr.*, vol. i., p. 375.

more practical than theoretic, and the essays that follow are essays in the *Method*, containing matter to be found by its means.* The book was written in the vulgar tongue advisedly, he tells his friend, so that weak spirits who might lay hold of the doubts and difficulties necessarily proposed, might also understand the reasons by which these were removed. Thus he excuses himself for not dealing more clearly with the distinction between the thinking soul and body (and consequently with the existence of God), on the ground that it was best to show the absolute uncertainty of judgments resting on the imagination or the senses, as compared with those resting on the pure understanding. "If I write in French, the language of my country, rather than in that of my instructors," he also says in the *Method*, "it is in the hope that those who avail themselves of their natural reason alone, may be better judges of my opinions than those who give heed only to the writings of the ancients."† Sensible people will not, he believes, be prejudiced against him, by the language he has adopted.

The book having at length been brought to light after all the manifold difficulties which encompassed its publication, the distribution of the two hundred "author's copies" began. The over-sensitive author had been forced, as we have seen, to avow himself as such, and to face as best he might the criticism and comments which were sure to follow. This sensitiveness was not due to under-estimation of himself, as his letters show. He was too proud willingly to accept benefits even at the hands of his friend, and says somewhat testily to Mersenne, when he was trying to find a publisher, that even before he left Paris he was offered a bonus, were he willing to publish, which proved that there were sufficient "fools to print at their own expense, and readers facile enough to buy copies." Perhaps he forgot that he wished now to publish anonymously, and had been living long out of public view.

* *Corr.*, vol. i., p. 349. † *Method*, p. 77.

Besides the king and Richelieu, the Chancellor Séguier (who gave the privilege of publishing), and other official personages, in Italy as well as France, Descartes' special friends, of course, received copies of the work. That to Balzac was accompanied by a note, apologising for the rudeness of the style, and simplicity of the reflections, and asking for his criticism, since the work still might be disavowed (one can hardly think this last sincere). The apology sounds oddly to us now, when we consider that Balzac's writings are hardly opened, while Descartes' *Method* has remained a classic, serving as a standard of clear, direct, and strenuous style. Nor did the author forget his old instructors at La Flèche of three-and-twenty years before; and his testimony of gratitude to one who had taught him in years gone by, and planted the seeds which had since matured within his mind, and to the Order to which he belonged, reveals traits in Descartes' character which are specially attractive. Huygens was the medium whereby a copy was conveyed to the Prince of Orange before the siege of Breda, but the French ambassador to Holland, De Charnassé, to whom the copies for the French Court were entrusted, and who, curiously enough, also held the position of Colonel of a regiment fighting for the States, was killed on this campaign, and Descartes was doubtful about the safe arrival of the copy sent through him to Richelieu. For various reasons, those sent to Italy also miscarried, and after long delay Descartes became uneasy. As usual he was nervous, in case suspicions had got abroad respecting his views upon the movement of the earth, especially as a librarian who ordered twelve copies for a library at Rome threatened to return them. As usual, too, everybody was not satisfied, even though so many copies had been distributed. De Roberval, professor of mathematics, had been omitted, either by Mersenne, to whom the work of distribution was partially entrusted, or by Descartes himself, and a mutual animosity ensued. Baillet, in writing the history of the incident, gives a pitiful account of the sufferings of an important author, who, whether he

presents many copies or few, is sure to bring indignation on his head from those who fancy themselves overlooked.

During the early part of 1637 there are frequent and interesting allusions to the subject of religion, and to the manner in which death should be regarded. Descartes defends himself for not dealing more with the subject of the existence of God, on the ground that he would have had to go into the whole question of there being any reality in existence, and show that it is impossible to doubt of one's own existence. For this is the way in which we gradually reach the knowledge of God. But to introduce these doubts which would, he says, be the first step requisite, would probably be to trouble weak spirits, while those of stronger build might discover their conclusions by themselves. In speaking of well-doing again, he explains that it is true that we have only to judge well in order that we may act rightly, but this well-doing must be regarded in reference to the philosophy of morality alone, and not in reference to grace, with which he purposely was not dealing. There appeared to be two points of view always present in Descartes' outlook on the world, each kept entirely separate from the other—the point of view of reason, with which the facts of life could be rationally explained, and the point of view of faith, which had to be accepted. He writes in May 1637 an interesting letter to Huygens upon the death of his wife, in which there is little about the comforts of religion, but much of the stoic manner of regarding death.* He says that to Huygens, governed as he was by reason, there would be much that would assuage his grief at death, especially now that there was no remedy to look for. To Colvius, on the other hand, a clergyman in Dordrecht, he writes in a different style in reference to Beeckman's decease.† He says to him that this life is but nothing in comparison with eternity, and trusts that they might assume that their friend had died in grace. The fact

* *Corr.*, vol. i., p. 371. † *Ibid.*, vol. i., p. 379.

seemed to be that Descartes lived a double life, with views developed from his reason clearly and definitely established on the one hand, and certain inherited beliefs which somehow had to be accommodated to these beliefs, on the other. Their reconcilement was no easy task.

CHAPTER IV

THE "METHOD" AND ESSAYS

THE famous treatise once published, René Descartes had finally committed himself to the mature decisions which he had all this time been struggling to attain. Had we no further writings from his pen than this, his *Magnum Opus*, Descartes would have meant to us something not very different from what he actually now does. In the "Method" which gave the work its name, we not only have his system clearly and carefully described, but we also have a practical demonstration of its working in the essays on the Dioptric, Meteors, and Geometry, which follow upon the introductory discourse. The shabby quarto, very differently got up from some of the contemporary publications issuing from the houses of Elzevir and Plantin, made its appearance quietly and without ostentation. But it carried with it a significance which few other publications have done from that date to this. It was not only that through it an attack was made upon the schools, which had never yet been made before, it was that a new system was being inaugurated in which the search for Truth on which men have ever been engaged had taken a fresh, and at the same time a startling form. Not only were men told to discard the old traditions and build up for themselves a scheme of knowledge from what they actually knew; this system aimed at something more than merely the adoption of a Baconian method of determining what was truth by process of experiment; it established also a philosophic

system which gave a rational explanation of the world and its phenomena. Science had been wandering in the dim mists of speculation; the time had come for certainty to take the place of guess. But men wished to know not only *what* they believed, but likewise *why* they believed—what was the true basis and groundwork of their beliefs—and this is what in his *Method* Descartes tries to explain. In this exquisitely simple and absolutely sincere record of personal experience, he not only sums up the matter of his belief, but he also shows to the world and to all time, the mode in which his conclusions were arrived at. It is only the masterpieces of real genius which can attain the perfect simplicity which carries conviction to each and every mind.

The author begins his task by taking the fact for granted that all men are provided with one essential requisite to true knowledge—the good sense or reason which enables them to discern Truth from Error—and that the only point which we must necessarily consider is that their power shall be applied in a right and proper way. Of course without this preliminary hypothesis it is easy for us to see that philosophy can make no progress, and yet, as we know, the time was not far distant when a philosophy of sensation was to attack its very foundation. To Descartes himself it appeared that he had made some progress in the time-honoured quest after Truth; and therefore, quite simply and unostentatiously, he proposes to write one of these spiritual or mental biographies which are so infinitely more precious to the reader than any amount of biographical accounts written by those who are mere onlookers as regards the struggle. Here we have the true and accurate account of a progress in mental development, such as on the spiritual side his predecessor, Thomas à Kempis, wrote in the quiet monastery of Zwolle close by in Holland, or such as his contemporary, John Bunyan, put on record in the common prison of Bedford.

The early life, the value of the school training in

languages and ancient history, we need not touch upon again. Already the clear demonstration of mathematics contrasted with the constant conflict of opinion in philosophy; with the usual disdain of youth, the writer "spurned the impostures of the alchemist and astrologer," and thanked Heaven that he was free to make of his life what he would, without requiring to avail himself of mercenary considerations. We have seen how he opened the great book of the world and voyaged to see the ways of other men and countries, and that then the great crisis was arrived at—the crisis in life which comes to every thinking man or woman, when they feel that the accepted creed of unquestioning youth has not met the real difficulties of life, nor assisted in solving the problems of conflicting evidence. The decision had once for all to be made; the question, "What am I to believe?" had to be answered; and Descartes' met the question bravely. Let us get rid of the old tradition altogether, he boldly said, and build up for ourselves a new system from the foundation. Do not, however, forget that this is an individual matter. It may not safely be undertaken by all men: patience and modesty respecting one's own powers are requisite, and these qualities are not common to all.

The difficulties now seriously began, and at once certain definite rules were laid down, rules which possibly do not sound original or remarkable, but which meant that hearsay and mere speculation were to be discarded in favour of the patient investigation which was to characterise the inquiry of the future. Do not, Descartes says, accept as truth what is not clearly known as such; divide your difficulties as far as possible, so that they may be the more easily solved; work your way up from the easy and simple to the more complicated, and, above all, see that nothing is omitted. Thus was he carefully and cautiously to build up the sum of knowledge; as it was exercised his mind would become clearer in its knowledge, and erroneous opinion would gradually become eliminated.

But Descartes was provided with an immense

amount of caution, such as was, perhaps, more characteristic of those amongst whom he lived than of his countrymen. He was determined not to destroy without having the means rightly to conduct his life while the process of reconstruction was being carried on; therefore he set himself to consider how meantime he could supply his needs. It was clear to him that, until he had reached some better thing, he must adhere to the laws and customs of his country, including its religion, adopt moderate rather than extreme opinions, and be firm and resolute in upholding these opinions. Above all, he had learned the lesson that the important matter is to conquer self rather than fortune, which surely sums up the lessons experience has to teach us. To Descartes it meant that in all his future life he must resolve to have no further aim than that of cultivating his Reason, and making what progress he could in the knowledge of the Truth; a resolution which was faithfully carried into practice.

Then comes the famous Cartesian change of front, in its way as great as was the Kantian transformation of a later date, which in a manner it foreshadowed. Both take us back from the external and unrelated facts of consciousness, from an endless multitude of qualities and properties, to the essential matter in the whole, to the Knowledge which is so much greater than all its manifestations, to the basis of Truth on which all other truth is founded. Descartes asks what is the essential in all this reasoning and questioning, and he replies, all is founded on the knowledge of Self, on what we afterwards learned to call Self-consciousness. Whether we say a thing is false or true, we still present a self of truth which acts as arbiter; we may be mistaken in our judgments, but above all judgments there is a principle which can never fail us, and which is constantly before us, whether we are actively conscious of it or not. To Descartes it had a subjective and personal significance, such as it had not to his great successor. To him it simply was the self, and he expressed his principle in the well-known phrase *cogito*

ergo sum. Now at length he was safe from the assaults of Scepticism, against which formerly he had been so incapable of defence, for whatever happened, it was clear that Thought was ever present. "The 'I,' the mind by which I am, is wholly distinct from the body, and is even more easily known than the latter; although the latter were not, it would still continue all that it is." *

He now proceeds to distinguish amongst the various individual truths, thus treading on more difficult ground, as all who try to reflect in the simplest manner know. To judge whether a thing is true, we must, he says, be able to conceive of it very clearly and distinctly. But we are led on to reflect that there must be something more perfect than ourselves, and we judge that this notion proceeds from some more perfect Nature. The notions of mere natural objects seem to be dependencies on our own nature, but this notion must proceed from God: no idea which indicates imperfection, such as doubt and sorrow, can possibly proceed from Him. From this highest sort of knowledge, he passes on to the next sort of truths, and at once remarks, as he has done before, upon the certitude given to the demonstrations of geometry—certitude due, he believed, to the clearness of their conceptions, although unlike the conception of a perfect Being, the existence of these objects is not a certainty to him. Given this existence, the reasoning respecting it follows quite certainly; within its limits, its certainty is absolute. To know the highest truths, we must rise above mere sensuous knowledge—that is to say, the old doctrines of the Schools which regard all knowledge as coming through the senses to begin with, must be discarded, just as the doctrines of the English sensualists were discarded later on; the higher conceptions do not come to us thus, nor, he might have added, in its abstract form, does any true knowledge. The highest conception of all, the existence of God, is proved by Descartes from our knowledge of truth, somewhat as it was by the great idealist, Berkeley, and probably the argument was open

* *Method*, p. 33.

to somewhat the same criticism as that to which Berkeley was subjected; but the lesson in knowledge that Descartes taught us, was the great one of limiting ourselves, after we have reached this higher knowledge of God and of the soul, to the evidence of our Reason, and not merely relying upon our "imagination" or our senses.

Thus, in accordance with that Reason, and by mathematical demonstration, Descartes goes on to explain the processes of nature; how, without going beyond these intelligible laws, the elemental chaos might dispose and arrange itself into an ordered world; how the forces of gravitation could operate, and light be generated—how all this *might* so occur, for there is the cautious safety-guard that it was "much more likely that God had created it at first as it was to be." Then follows the explanation of animal life, the action of the heart and arteries, all of which is graphically described more or less in accordance with the lately published investigations of the "English physician," Harvey. We can hardly realise in these days what it meant to have a clear and rational theory of what before had seemed so mysterious, for here the marvellous mechanism of the body was set forth in all its clearness. It was easy for men to represent to themselves a machine of infinitely complicated nature, one which was a veritable automaton, unless (as in the case of man) the body becomes endowed with a reasonable soul expressly created. The theory, indeed, seemed just to meet the requirements of the age, for Descartes' philosophy, unlike that of the Schools, was to be a practical philosophy, one which was not merely to deal with remote speculations in the air, but was to concern itself with man and his surroundings in all their various relationships. The new philosophy, in fact, was truly to live in the lives of men. What has now to be done, in Descartes' view, is to learn to *know* in the best sense of the word; we have no longer to deal with mere opinions one way or the other, but we must have a personal, present, and certain knowledge, first of self as

being the most important, and then of the world around us. The method of investigation would be a slow one, and much patience would be required to follow it out, but Descartes' appeal was boldly made to all men who could exercise their Reason, and would give him fair consideration; and that his readers might be the more numerous, and that none might be overlooked, he went so far as to write his account of it in the vulgar tongue. Whatever we may think of the later development of his system, we must all agree that there could be no more clear and convincing account of a method for reaching the knowledge of Self, which meant to him the knowledge of all Truth. Oftentimes Descartes' theories carried him away, and the investigation was overlooked. Again he did not realise, perhaps, that Truth was not something which can be laid hold of as a here and now; he did realise, however, that the search must be begun, not outside, but within, and that it is only by knowing something of the seeker that in this case we can attain the sought-for. Thus he has struck out a new and modern line which has been the line followed out by most of our more recent investigators. The system has produced strange antitheses: on the one hand, it has developed into materialism of the kind which has characterised the physiology founded on his preliminary researches; on the other, it has led to the idealism of Berkeley and of Kant. The early Jesuit instruction had lent a certain mould to a mind which was forced into doubt to justify its existence. Descartes "consecrated doubt," says a modern writer, but the doubt so consecrated was not that of a coward soul, nor of one who cannot face and seek to solve the mysteries of life. It was the doubt which only doubts to know the more certainly. Doubt, indeed, it hardly can be called, since it rather is, in his own words, the "Method" of reaching a knowledge of the Truth. For others it was left to find the drawbacks and inconsistencies of a system so clearly and definitely drawn up. To him, certainty was the keynote of his *Method*. Let nothing pass without careful investigation and verification, he says, and having

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found a satisfactory basis on which to rest, commit yourself to your System with every confidence, applying it freely and without faltering to every branch of knowledge.

The *Discourse* was, as we have seen, followed by the essays on the Dioptric and Meteors afterwards translated into Latin by Etienne de Courcelles, under the supervision of the author. The possibility of such an essay as the former had only just resulted from the discovery of the telescope, and the immense vistas of possible future knowledge which it had opened up. A new world had indeed been brought to light greater than the one already known, and no one knew what might still remain to be revealed. Descartes ascribes the invention to Metius of Alkmaar; whether due to him or to Lippersheim, it was undoubtedly of Dutch origination.

Descartes' optical investigations are usually considered those in which he made the greatest contribution to science, and the style in which his treatise is written is clear and luminous. The subject, indeed, was one which interested him practically, since he wanted to discover the formation of lenses best adapted for the newly-discovered telescope. To begin with, he applied himself to the demonstration of the true nature of light, and for this end he compares its effect with that which takes place when the blind man feels his way with a stick and thereby determines his surroundings; just as he decides which is a tree, a stone, or water, so we decide by the effect of the ray upon us what is yellow, red, or green. That is to say, according to Descartes, the action emanates from the object, excepting in the case, for instance, of a cat, which sees in darkness, when the light, he appears to think, may, on the contrary, travel from the eye to the object. The velocity at which it travels is, however, regarded by him as infinite.

The second chapter of the *Dioptric* is devoted to the nature of refraction. Snell, we may remember, discovered the law of refraction in 1621, but very possibly Descartes likewise made the same discovery, since he

does not mention the other's work; the only other supposition is that he forgot how much he owed to his contemporary. Descartes, however, whether he discovered it or not, puts the law in a clear and comprehensive manner (though it was by him deduced on *à priori* grounds by certain principles which were assumed), and where he differs from Snell he does so correctly. His proof of the law is founded on the theory that light is the tendency of the subtle portion of matter to move in straight lines from the luminous body to the eye, which represents, of course, the corpuscular theory of light. After explaining this very fully, he proceeds to give an account of the formation of the eye in all its parts, describing with some minuteness the retina (which he calls the optic nerve), the iris, and its action in contracting and dilating. He then brings forward the important point that it is the soul and not the body which has sensation, inasmuch as the soul resides within the brain, and as the sensation is conveyed by means of nerves. With Descartes we have to conceive of nerves as little threads or filaments arranged in tubes; these filaments, when moved at one end by the object of sense, pull the parts of the brain to which they are attached, and open the doors of certain valves there situated. The animal spirits, for which there is also room in the nerve tubes, then pass down and cause movement to occur by inflating the muscles. We must not, he says, imagine, as did the scholastics, that ideas must necessarily be conveyed by the objects themselves, or even resemble them, since many other things besides these images may excite our thought.

He goes on to show how images (of course reversed) are formed upon the eye, demonstrating this with great skill and anatomical knowledge; and, finally, he explains how the motion of the light causes a representation to be made upon the brain, which may be carried on to the "seat of common-sense," or even influence, by means of the arteries of a mother, a yet unborn child. Thus vision, he considers, is simply a matter of motion or

disturbance, just as are the other sensations, such as that of taste. Sense of situation and distance, again, may be arrived at by means of the alteration in the body of the eye, which acts upon the brain, the relation borne by one eye to the other, and the distinction or otherwise of the figure. He likewise deals with optical delusion, and the use of spectacles in old age, describing the manner whereby the rays of light are made to strike upon the eye, as though from a nearer or further distance. He also, of course, treats of the telescope, the true theory of which had been given by Kepler, in so far as the method of finding the focal length of lens was concerned, and afterwards proceeds to explain the forms which lenses intended to refract light must have, showing the power which they should have to cause the rays falling upon them parallel to their axes to meet in one point; he also demonstrates that the cross section of the surfaces of the lenses ought often to have the form of hyperbolas or ellipses, the nature of which curves he took considerable pains to explain. His mode of writing on the subject of lenses is eminently that of the workman who could carry his theories into practice, and it is as such that he describes minutely the actual manufacture of the various sorts of glasses; the difficulty of grinding surfaces of glass to the required forms were, however, so great as to make their investigation of little practical value. His manner of discovering the laws of refraction might be in a sense *à priori*, being derived from certain unproved hypotheses; but his methods were at the same time eminently practical.

The third part of Descartes' great work was that known to us as his treatise upon Meteors, although the title seems a far from suitable one for a work which is, in fact, a treatise on natural science as a whole. In it we are on ground on which the *à priori* methods are less successful, and respecting which science had less to say of a definite or certain character. Descartes here enunciates his theory of matter—a theory which has, since his day, been so much and vehemently discussed,

also for the most part on theoretic grounds. To him, matter is composed of parts of various sizes and descriptions, associated together in different degrees of closeness, and in constant motion—a motion which is quicker when directed towards the earth than towards the sky. He describes to us how the sense of heat is caused, and how opposite causes bring about cold, just as he explains his theory of vapours, and how the agitation of their parts causes expansion and variation in temperature. Then he deals with what has always proved of interest to alchemists and the early scientists alike—the nature of salt and its behaviour under different conditions: why salt water is transparent, and why it does not easily freeze, and what is the effect of mixing snow and salt together. Winds next occupy his attention; he ascribes them to the action of the vapours, and propounds elaborate theories of why certain winds blow more in the day than in the night, the morning than the evening; and why wind blows during the day from the sea and during the night from the land. With the nature of clouds and mists he is more successful; he shows how, in his belief, the clouds are condensed and fall in rain or snow or hail, how snow-crystals are formed, and why drops of rain are large or small, after which he goes on to describe tempests with their various manifestations, and the fires which certain Flemish sailors are said to have seen at sea. Thunder he ascribes to the higher clouds descending upon the lower—the loudness of the sound being due to the resonance of the air; the lightning he calls an exhalation from the space between the two clouds which differs in kind with the state of the atmosphere and surrounding conditions. The ensuing rain is due to the lower cloud descending, and hence the thunder ceases when it appears. The phenomenon of lightning, indeed, is one which always had special interest for Descartes. The rainbow is explained more fully than as yet had been the case, although the explanation is necessarily incomplete from his ignorance of the fact that the refractive index of a substance is different for light of

different colours.* He explains, however, that the phenomenon is due to round drops of rain, and that the same colours may be produced by a prism or triangular crystal, the colour being explicable simply by refraction. He tells us that to produce these rainbow colours there must be light, refraction, and a shade or limitation of the light such as an opaque body through an opening in which the impression should appear. If the opening be too large, he says, the middle space on the screen on which the colours are thrown appears white, and thus, to all appearance, Descartes approaches Newton's discovery of the composite nature of white light. Light itself he describes as comparable to little spherical particles of subtle matter which run into the pores of terrestrial bodies, and the colour of clouds he endeavours to explain by their exposure to the light given off by the stars or by their being in shadow. Finally, he deals with the phenomena of parhelia, such as those seen near Rome in March 1629, which, as we have seen before, interested him so deeply.

In all that Descartes writes on subjects such as these we must recollect his point of view, which was, of course, that matter is inconceivable excepting as extended, and consequently that a vacuum is an impossibility, since what *seems* empty is really filled with subtle matter: the sides of a vessel in which there was no extended matter, in this view, would simply fall together, since there cannot be such a thing as an absolutely empty space. So far, scientific men had not a clear conception of mass; they did not make a practice of ascertaining by the use of the balance whether matter had gained or lost in weight, and how it became transformed, and consequently they had not a good working hypothesis for their investigations, more especially for their chemical investigations. The Cartesian theory of extension was but a theory that did not help in making exact determinations and

* It was known since Aristotle's day that the rainbow was produced by the rays of the sun reflected in a particular way by the drops of water, but to the end of the sixteenth century it was always in reflection alone that the variety of colours presented was sought for.

following up experimentally the changes that take place in nature, and this was, of course, its weakness.

The last part of the Treatise is that devoted to the study of Geometry, and in some ways this is the most famous portion of the whole; it will be more fully dealt with later on. Hitherto, Descartes tells us, he had spoken to all alike; now he could hope to appeal only to those acquainted with the subject; indeed, the obscurity of the reasoning, of which he seems almost proud, was apparently intentional. We may, at present, merely say that his methods of investigating the nature of curves, and bringing Geometry under the dominion of Algebraic methods, immensely extended the bounds which limited that science.

The enterprise of writing first a Theory of Knowledge, and then a general application of this theory, is so huge a one that it seems to take away the reader's breath. Such a proceeding in the present day would be unheard-of, and indeed impossible. Science has become too vast to make the proceeding a conceivable one, and we are apt to smile at the unscientific and *à priori* methods which seem to us to characterise much of Descartes' writings. There was nothing Baconian in his system; experiments seemed brought in mainly to confirm the theories already thought out and assumed; effects to him were to be deduced from known causes, and not *vice versâ*. But we cannot but observe that Descartes had a truly scientific mind, which was no longer satisfied with vague "explanations," shedding no real light upon the subject which was being discussed, but which openly demanded that every one of these should be made rational and comprehensible. He might be in too great a hurry to find the explanations he required. Many of those given were certainly only satisfying for the time, and further investigation proved them false or insufficient. But he had established himself firmly on the rock of Reason: he had discarded what was incompatible with the rational and true, and he had said that these truths of which mankind is certain —truths as certain as the simplest mathematical

demonstration—should form the basis of our future knowledge. With these we may understand the world and all that it contains; nothing is too wonderful for us to have the power of grasping: we have but to enter upon our great inheritance of certain knowledge. Scientific facts in becoming scientific also become interesting. Descartes' theory of knowledge was to be attacked in many different ways; his "facts" were often enough to be proved untrue, and his theories shown to be untenable; but through all these troubles Truth and Reason were destined to be the victors in the end, and theirs was the cause for which he fought.

CHAPTER V

CORRESPONDENCE AND DISPUTATION, 1637-1639

THE book that was to make his name known throughout the civilised world was now fairly launched upon its way, and Descartes once more, as was his wont, retired within his shell, concealing so well his whereabouts that we have much difficulty in determining them at all. Baillet records an expedition to Douai, stating that Descartes spent a few days with the Governor while entertained by those connected with the university who were thought most capable of appreciating his company. In the philosophic discussion that then took place, he appears to have acted as arbiter between those of his companions whose disputes got beyond the bounds of courtesy. He himself is described as having been, as a rule, slow of speech, but when he did speak his words were said to have been carefully weighed, while his judgments were given without arrogance.

In the summer and autumn of this year (1637) he was near Alkmaar, possibly at one of the three Egmonds, close by—Baillet thinks it was very likely the one known as Egmond-Binnen, considered the most beautiful village in North Holland. There was at this Egmond a Catholic church, since the population was largely Catholic, and there were priests at Alkmaar and Haarlem close by, who were men of learning. But it was really the solitude of the place that attracted Descartes, who was ever endeavouring to escape from the distractions even of the small world of Holland. From here he corresponded with his friend Huygens,

who wrote to him from before Breda, "Descartes' former garrison town," begging for a further treatise on mechanics, which in due time he received. This was a short dissertation written in Friesland, and afterwards incorporated in his other work. From a letter to Huygens we gather that the depression of spirits which often accompanies the termination of a great piece of work had affected Descartes : he regrets the time wasted on what he had accomplished, and the fact that he had not now the leisure of his earlier days ; his grey hairs were coming to remind him, not that he should make the most of the time yet to come, but that he should try to apply his whole efforts to staving off the infirmities of age which seemed even now to be threatening him—a hard task indeed.* He also says that he is engaged in composing a short treatise on medicine, which was to point out the best method of "fighting the battle with nature." Huygens evidently hoped for light upon the subject, for he eagerly asks for "three lines" to tell him exactly what his friend was doing, and whether he hoped to leave behind him some valuable discoveries. His whole-hearted admiration must have been welcome to one to whom sympathy was always requisite in the performance of his work.

There are letters of this date to various Jesuit Fathers, of whose good opinion Descartes was so desirous in reference to his newly published book ; but besides having the criticism of Plempius and the compliments of Huygens, his main correspondence is still with his good friend Mersenne, who, in spite of his tiresome way of showing to others what was meant for his own eye alone, remained Descartes' constant supporter and ally. After the stay at Egmond in the early part of 1638, MM. Adam and Tannery are inclined to think he moved again to Amsterdam, but of this we have no definite information. At Egmond he must have been close to the scene of the extraordinary "Tulip mania" of 1637, when a single bulb sold for over 4000 florins, and when fortunes were made and lost as in a day. But of such trifles as these we

* *Corr.*, vol. i., p. 507.

have no mention in a life which seemed immersed in the consideration of things of deepest import. Descartes was only eager to collect the objections made to his system, so that he might fitly make reply: at present his complaint was that he met with too much agreement with his views, which shows that from the side of orthodoxy the criticism had not yet appeared which was to follow later on. Even the Jesuits, so far, saw no serious objection to his tenets, and hitherto the Calvinists had been silent. But a somewhat celebrated dispute with Fermat occupied a good deal of Descartes' attention. An impatient and not over-scrupulous friend, De Beaugrand, had apparently obtained possession of the proofs of the *Dioptric* before publication, and sent them to the now famous Pierre de Fermat, who was most anxious to peruse them. Mersenne, aware of Fermat's special knowledge, asked him to state his views respecting the work. Fermat was a sort of Admirable Crichton, great in many sorts of knowledge, and his merits had perhaps been unduly pressed upon Descartes by their common friend, Père Mersenne. At first Descartes was wholly appreciative of his correspondent's abilities, but his feelings altered when four or five pages of objections followed the reading of the *Dioptric*, as also a letter to the tactless Mersenne, who forwarded the same, regardless of certain passages expressed perhaps too freely. After having read the Geometry, Fermat sent to Descartes, through Mersenne, his treatise *De Maximis et Minimis*, begging him to read it with care, and expressing surprise that the matter with which it dealt had not been treated of by Descartes.* The latter looked on Fermat's letter as a challenge, and wrote rather testily to Mersenne, sending him his objections to Fermat's method (which were really groundless), and trying to show in special cases that it was useless.† Roberval and Etienne Pascal supported Fermat, but their criticisms

* *Corr.*, vol. i., p. 482.

† Fermat's method is founded on a statement of Kepler, that when a quantity has reached a maximum or a minimum, its value at that point is equal to its value at the point infinitely near it on either side.

have been lost.* Descartes was well assured that any misunderstanding of his writings arose from the real difficulties which underlay what at first seemed simple, and so far he believed himself to have had no satisfactory interpreter. One feels in such disputes that a little tact would have put matters right, and this tact was wholly wanting. On Descartes' side, his friends Mydorge and Hardy held the same place that Pascal and Roberval held to Fermat and Mersenne; professedly independent, they really encouraged the continuation of the dispute. There were quite a number of attacks, replies, and counter-replies, some of which are lost, but all of which are duly enumerated by the faithful Baillet. The dispute was carried on long after Descartes' death, as may be seen from Fermat's letters, and yet, so far as one can tell, at no time was any very serious matter of principle under discussion: it largely turned on the validity of certain analysis used by Descartes, and was partly due to the obscurity of his writing. Possibly the mathematical society which met in Paris may by their further discussions have helped to fan the flame. The personal reconciliation between the foes duly took place when they became weary of disputing, and it was Fermat and not Descartes who made the preliminary overture. But, when that was once made, Descartes showed his better side. He begs Mersenne to assure Fermat that no one could be more desirous of the friendship of good men than he, and he thinks Fermat could not bear him ill-will for having frankly spoken out his opinions of his writings; he adds to this, "If he (Fermat) says he has found certain words in my first paper more bitter than he expected, I humbly beg him to excuse me, and to consider that I was unaware of it. . . . And if those who dress up at carnival time take no offence if one laughs at the masks they wear, and does not acknowledge them on the street as one would in their ordinary habits, so he should not take it ill that I replied to his

* Baillet considers that Roberval used Pascal's name unwarrantably (seeing that about this time he had to retire from Paris on political grounds), but we have no reason to suppose this was true.

writings quite otherwise than I should have done to himself, whom I honour and esteem as he deserves. If I have said anything here displeasing to M. de Fermat, I humbly beg him to excuse me, and to consider that it was the necessity of self-defence that constrained me so to do, and no intention of displeasing him." * Descartes clearly had not forgotten the manners of a *gentil-homme* learned in his early Paris days. The quarrel ended in mutual compliments, and the friendship was extended to the two seconds, Pascal and Roberval, though this seemed even a more difficult undertaking than the first, since, according to Descartes' side, they had not acted quite fairly by putting questions that they could not themselves solve.

As regards his book, Descartes apologises to the Fathers for whose good opinion he cared so much, for having somewhat hurried over the question of God's existence: for this he gives a strange excuse in saying that to have done so would have necessitated his speaking of the uncertainty of our knowledge of material things in a manner which would have been unsuitable, considering that he hoped "that even women might comprehend somewhat of what he wrote." As to the establishment of the Faith he professes to have no fears, and promises even to justify the doctrine of Transubstantiation, which the Calvinists were unable to accept.

Amongst the letters of 1638, very many are preserved on these and other topics. Descartes discusses the old question of the nature of the soul in distinction from the body. With his correspondents Ciermans and Plempius, he enters into scientific questions, and to Huygens he writes in the style of the man of culture and education. But it is Mersenne's letters that always are most natural and interesting. With him not only does he discuss scientific topics, the meaning of weight, the existence of a "perfect number," etc., but what is much more interesting, he discourses simply of everything that concerned him—his quarrels, his beliefs, his troubles.

* Baillet, vol. i., p. 343.

He tells of the pleasure he experiences in the solitude of his abode; and describes an outbreak of fever at Leiden (where he passed the summer of 1638), from which all around him were suffering, but from which he himself escaped. His contemporaries receive but a faint modicum of praise. Roberval, his opponent, is "as vain as a woman with a ribbon in her hair." Beaugrand and others are not worth taking seriously. Campanella's book "he does not wish for." His disdain of his opponents went too far in his criticism of Galileo, although he allows that he "reasons mathematically" (the highest praise in Descartes' estimation), and avoids as much as is in his power the errors of the schools.* On the whole, however, Descartes failed to appreciate the work of this great man; he objects to his system of examination, and considers that he is content with tracing the causes of particular effects without going back to the great first causes. Galileo's work of founding the science of dynamics was wholly unappreciated by him. In the book which he discusses (Galileo's *Dialogues on the New Sciences*, published at Leiden in 1638), Descartes combats the theory of nature's abhorrence of a vacuum, still so far adhered to by Galileo as by the older philosophers; but his objections to Galileo's other investigations are often quite erroneous, while he does not take notice of his newly discovered and famous law regarding the oscillation of the pendulum. Sometimes, indeed, he goes so far as to speak almost contemptuously of Galileo's work, saying that "he has taken nothing from Galileo, and that he finds hardly anything in him which he would wish to call his own." † Of course we should recollect that the criticisms contained in Mersenne's letters were very possibly not intended for publication, and hence were not made with the care that might otherwise have been bestowed on them. But still Descartes did not grasp the importance of the work done by his contemporary, more especially in mechanics and in astronomy, and we cannot fail to feel that his attitude of mind may have had some

* *Corr.*, vol. ii., p. 380. † *Ibid.*, vol. ii., p. 388.

connection with the fact that when the great philosopher most needed it, no assistance was given him by one who might have rendered it most effectually.

It is interesting to remember that many of the questions discussed in Descartes' letters would probably be also vehemently discussed in the gathering of scientific men, which was the nucleus from which the Academy arose. Whether or not a vacuum were possible (Descartes, of course, asserts that space without matter is a contradiction), the laws by which bodies fall, the paths of projectiles, were all subjects of keen dispute. Descartes, however, was working out these questions alone; he had few books, he tells us—so few that he wonders how one by Harriot had got concealed amongst his "half-dozen." It was indeed from Harriot, who wrote on the theory of equations, that he was afterwards accused of plagiarising, though Baillet accuses Roberval of making spiteful inuendoes in this matter. But he appears to have exaggerated Roberval's sentiment against Descartes, as, indeed, he is in the habit of doing in regard to those who were not altogether his admirers.*

In spite of his rather depreciatory remarks about his contemporaries, it is pleasant to find Descartes speaking warmly of Kepler, even while defending himself from the accusation of having borrowed from him. He was, he says, his first master in Optics, and the one who had most knowledge of his subject. On the other hand, he is most anxious to show that he has not derived anything from Vieta, and in reply to Beaugrand's reproach that he had neglected to read his works, he insists that all he wrote was well known to him already. As to certain criticisms made by the engineer Petit, he says they are valueless, from the fact that Petit "did not understand a word of what he had written on God and the soul, and that he had no right to wander into the region of metaphysics." On one occasion he even compares Petit and the like to "little yelping dogs of whom no notice should be taken." Like so many of his adversaries, however, Petit became,

* *Corr.*, vol. ii., p. 459 *seq.*

later on, a warm friend and supporter, besides which he applied himself earnestly to metaphysics, and Descartes quoted, in respect to him, the saying that there is more joy in Heaven over one sinner who repents than over the many just persons who need no repentance. Morin, professor of mathematics at Paris, was another and more serious opponent at this time, and he was considered one worthy of reply. This correspondence with him also ended pleasantly, and, so far as it concerned the nature and transmission of light, it is interesting. Yet another critic was De Beaugrand whose writings he procured with difficulty through Limousin, the valet sent by Mersenne to take the place of the much esteemed Gillot, and he wrote a short criticism on the *question géostatique*, which Mersenne wished to publish; Descartes, however, thought it unsuitable to identify himself with De Beaugrand, and treat him thus seriously by publishing a paper which could not possibly make more than a book merely "worthy of blue paper binding."

The question of the so-called roulette—the curve produced by a circular hoop rolling along a straight line—was then agitating mathematicians, and more especially in Paris. This question was first brought up by Mersenne and Roberval; and Fermat and Descartes were called upon to give their explanations. As usual, there were a considerable number of personal questions involved as to the particular person to whom was due the credit of explaining the curve to which Galileo first drew attention. Roberval found the area of the roulette (or cycloid as it was afterwards called), and Descartes, who thought little of his discovery, challenged him or another to find the tangents: this challenge was accepted by Fermat, who solved the problem. The question of the roulette, or cycloid, became further involved, and was finally taken up by the younger Pascal. Descartes concerned himself mainly in vindicating the claims of his former foe, Fermat, against the pretensions of Roberval, apparently with justice. Pascal worked out the whole matter connected with the curve more

thoroughly later on, as well as the position of the centres of the mass of the solids formed.

This controversy shows how far from serious was Descartes' alleged intention of abandoning abstract geometry in favour of physics, or the explanation of the phenomena of nature, which distressed his friend Des Argues; and yet doubtless he felt that the most profitable work he could accomplish lay in the direction taken in his later studies. The obscurity of the geometry had then as ever been a hindrance to its popularity, and commentators were not slow in making their elucidations. But the subject evidently wearied him, and he was glad to escape having to answer endless tedious questions. In Holland, Cartesianism seemed to find a congenial soil and flourish. The new University of Utrecht, under the influence of that famous Cartesian, Reneri, exercised a considerable effect on men of learning in Holland. Reneri had a disciple in the young doctor Henri le Roy or Regius, who made certain overtures to the master himself, greatly to the latter's satisfaction. He could little foretell the trial this promising young student was later on to prove to him. Regius began privately to teach Cartesianism to his own friends under the name of physiology — an association of philosophy with science which must have seemed strange to the empiricists of the day—and the set of young enthusiasts who came under his influence applied their minds to getting him appointed a professor in the university. They succeeded easily enough in getting a second chair of medicine established, but the election of their nominee was a much more difficult matter. The Rector Schotanus and the Senate were not easy to deal with, and accusations of Arminianism were made at a time when Calvinism reigned supreme in all official regions. A theological professor, Voet or Voetius, a zealous Gomarist, was deputed to make full investigations as to Regius' faith. Regius was able to show the certificate entitling him to Church membership in Utrecht and the other States, and so well satisfied was Voetius with his inquiries that he received him joyfully into

his embrace, and stated he would gladly own him as a colleague. With Voetius' help the final steps of getting Regius appointed were comparatively easily accomplished; and there was a sense in which the appointment was due to Descartes, as the grateful Regius asserted. Cartesianism was clearly becoming a force in this land of learning, and the new spirit which was taking the place of the old traditionalism—the revolution in thought to which the Reformation was but the preface—was becoming evidenced in the modern and up-to-date Utrecht University. The appointment of a new professor meant more than first appeared.

Baillet tells us how Descartes' acquaintanceship with Reneri developed further, to the satisfaction of both, but his friendship with the young doctor Regius was an especial pleasure to him at this time when he was turning his attention more particularly to medicine. Visions of a long life—one which would prolong itself beyond the century—always seem to have haunted Descartes, and he set himself to compose the Summary of Medicine which was to help men to reclaim some years from nature. To study the subject more thoroughly, he seems to have left Leiden for the village of Egmond, where he could live more peacefully and wholesomely. During the year 1639 he appears, however, to have temporarily taken up his abode at Zandpoort near Haarlem, and then at Harderwyck on the Zuider Zee. His age was only forty-two, but he felt his energies must now be devoted to warding off the effects of the years that were beginning to demand their rights. The mention of illness always, however, irritated Descartes, "who had not for thirty years had anything worth calling an illness." Age had, he says, taken from him that "hot blood" which made him in old times love the profession of arms, and he no longer "practises any profession but poltroonery." He believed, however, that his knowledge of medicine might enable him to live and taste with care, "like a gouty rich man," and that he was really further from death than when still young. A long life he looked forward to, but whatever Providence might send him he trusted he

would submit to it, since one of the main features in his morality was to "love life without fearing death."* Later on Huygens wrote begging Descartes to publish his *Monde*, since death might to-morrow overtake him; and he replies almost testily that he will judge about publication by circumstances, but that death need not overtake him, for thirty years "since his health and teeth were excellent." At the same time it is interesting to see that the soldier spirit had not left the philosopher entirely, since he says to a correspondent Pollot, who had been made prisoner in the war, that he had rather have been made prisoner with him than have retreated with the rest.

Thus far the reputation of the young university was growing under Reneri's influence. Cartesianism was becoming the fashion, and there were no traditions to prevent the free development of the new teaching. The professor was hard-worked, for he had to give eighteen lectures in the week: vacations, too, were short, and limited to two. There is little wonder that his health was suffering, and for this reason he was besought to remit some of his energies. Whether from excess of work or from other causes, Reneri, only forty-five years of age, was seized with serious illness. He had not married, in order to have more time for his beloved work; but after a severe illness lasting for six months he seems to have been persuaded by his friends that a help-meet, and one who could act as guardian to him in his precarious state of health, would be desirable. Unfortunately, in March 1639, on the very day that his not too romantic marriage was celebrated (for the matter appears easily to have been arranged), the unfortunate man was seized with illness and expired. The loss to Cartesianism and to Descartes himself was a very real one. So thoroughly was Reneri identified with Cartesianism, that the oration pronounced on his death was simply an oration on Descartes' teaching. Regius wrote to tell Descartes of the sad event, and at the same time begged to be allowed to visit him at Egmond,

* *Corr.*, vol. ii., p. 480.

and in some measure occupy the place in Descartes' friendship formerly held by Reneri: so far he was a faithful disciple. The *éloge* was pronounced by another admirer of Cartesianism and its author; some poetry composed by the same individual was, however, too laudatory even for Descartes' appreciation, and he excused himself for not preserving the only copy, and thereby prevented its being published.

Lord Herbert of Cherbury had lately published his *De Veritate*, and this was forwarded to Descartes by a Mr Eding. Herbert, having been Ambassador to France, must have been known by reputation to the philosopher, and he is one of the few contemporary writers of whose works he took serious notice. The subject—the search for Truth—was in itself of interest; although for himself he believed Truth to be so clear that it never need be doubted: "how is it to be defined," he asks, "if not in reference to our own conception of it?" Some things must, in his view, be taken for granted, and Descartes considered the light of nature a better guide than universal consent. "Follow the natural instincts," says Herbert. "Rather should we distinguish between intellectual instincts, or the light of nature, and the instincts which we possess in common with the animal world," replies Descartes. Herbert proceeds to show that the distinctive mark of man is his capacity for religion; but here the cautious Descartes leaves him to the doctors of the Sorbonne, with the mild remark that his sentiments appeared to him to be sensible and pious, and likely to be approved by orthodoxy.*

How much Descartes actually read at this time it is difficult to say. He mentions amongst his books the *Summa* of St Thomas and the Bible, and speaks of having little time for reading. But however few his books, every imaginable topic occupied his attention, from the properties of physical objects to subjects of deepest speculation. On religious questions he was, as we have seen, cautious, but occasionally he gives expression to his views, as he did in reference to the tale

* *Corr.*, vol. ii., p. 599.

of the miraculous image of Saint Bernard supposed to have been imprinted on a stone, by asking the question, why, if it was really miraculous, should it not be clearly a miracle, and not the object of controversy? Descartes, indeed, had to maintain his orthodoxy on various sides. He protested that certain priests with whom he was acquainted, Bannius and Bloemart, were the only members of the caste he knew of who were "exempt from the qualities which made him while in Holland avoid consorting with their cloth," and in requesting some favour for them he says they are not of those who think they "cannot be good Catholics without supporting the foreign king." He also says that he himself has been blamed for living in a country in which the exercise of his religion was not free. All he desired was peace and quiet, and yet annoyance came to him in an unexpected way. There was near Leiden, as we hear from the garrulous traveller Sorbière, a certain sect of so-called "prophets," a simple company of godly peasants, male and female, who themselves expounded the Bible, and who, according to Sorbière, read it in the original. Descartes had the curiosity to go to hear them preach, and he also attended the meeting of another preacher of the Anabaptists, whose views were so extravagant that he could hardly refrain from laughter. On the ground of these innocent expeditions, he was accused of attending Calvinist services, while the only occasion on which he had really done this was, he assures us, on the day of the rejoicing over the defeat of the Spanish fleet at Duins. Happening to be at the Hague, he listened to the sermon, but he remained at the door, and left directly the discourse was concluded, so that he might not be supposed to be participating in the worship of a religion other than his own.

Meantime, all was not going well at Utrecht. The principal minister of the town, and most eminent theological professor, Voetius, who had sustained the victorious side at the Synod of Dort, supporting the Orange party as against the Remonstrants, and thereby gaining a position of authority and power, perceived in

these new doctrines an element of danger, and resolved that they must be exterminated. He dared not at once bring forward his objections after the *éloge* on Reneri had been pronounced, in case of offending the magistrates, his superiors, but he set himself to discover what was unorthodox in the theology of the Method and contrary to the Protestant religion. For this work Voetius, a born disputant, was well adapted; he was vigorous, ready to attack what he thought evil in the great even more readily than in the humble; his appearance, the tone of his voice—all denoted the sort of man he was. He was grave, self-restrained, handsome, and in his way well read. He did not mince his words nor hesitate in expressing himself; he was a valuable ally and a dangerous enemy: one to whom fighting was the joy of life. What proved a long battle began in June 1639, with the promulgation of certain theses regarding atheism, which mentioned, as symptoms of the sin, certain attributes commonly ascribed to Descartes. Regius, though he realised that he must be cautious in expressing his Cartesian opinions, at the same time did not hesitate to ridicule the old systems, and thus offended their supporters—an offence which culminated in his conduct at a public disputation when he aggressively upheld the views of the initiator of the new philosophy. We shall hear more of the controversy later on.

The Harveian doctrine of the circulation of the blood was another subject that was now being hotly and somewhat angrily discussed. Descartes had corresponded much on the matter with his medical friend Plempius, and Plempius threatened to use the correspondence in a way which was thought unfair by Descartes, who gave a partial support to Harvey, while perpetually suggesting doubts and difficulties. However, just as the discoveries of Galileo had appealed to him in virtue of their demonstration of the rule of law and mechanism, so these other discoveries made by the great English doctor appealed to him as yet another ratification of his Method, and exemplification of the order of the universe. The theory of the circulation of the blood was one specially con-

genial to his mind because of the mechanical nature of its basis. He constantly reverts to it, and describes its system. Descartes seldom agreed entirely with a contemporary writer, however great his reputation; his method was to doubt until his reason was convinced. And we must recollect that Harvey's system was not yet complete, since it was not till much later that the union of arteries and veins by means of capillaries was discovered, so that his criticisms were not entirely out of place.

CHAPTER VI

PUBLICATION OF THE "MEDITATIONS," 1639-1641

DESCARTES was much occupied at this time with the *Meditations* at which he had for long been working, and which were to be published shortly. The preparation for the issue of the volume was a formidable matter, and Mersenne was warned that there might be a long interval as regards letters, since the writer must be free from other distraction. The correspondence, however, proved too old a one to be thus left off at will; the arrangement was that anything of *human* interest or pressing import would be written of at once, and such subjects were apparently very easily found, for the letters may be said to form a diary of the writer's doings. The learned world had just been amazed by the appearance of a work on Conics by young Blaise Pascal, the son of a well-known father, and aged only sixteen years. But Descartes had no enthusiasm, and did not allow his surprise, if surprise he felt, to be made evident. When he read the essay, he judged that the author had obtained his knowledge from Des Argues, and says that he himself confesses this. Pascal's friends denounced Descartes for failing to recognise his merits, as did the Port Royalists later on; while Baillet thinks it was a great honour to the boy to ascribe the credit of his work to so eminent a mathematician. MM. Adam and Tannery, however, tell us that Pascal's "Essay" was but a simple sheet, and that the writer commences by ascribing all credit for its production to Des Argues.* This is the

* *Corr.*, vol. iii., p. 54.



Descartes' House at Endegeest, near Leiden

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"Confession" of the author himself, which Descartes was so much blamed for mentioning. Des Argues also wrote on conic sections at this time, and had indeed consulted Descartes as to the form his work should take.

Regius was extremely anxious to induce his master to come to Utrecht, where he had so many friends; and finally (Baillet says) he did go to a country house near Utrecht; but whether the winter of 1640 were too severe (he tells of a great storm of wind that tore up leafless trees), or whether, being near his friends, he found himself too near his enemies also, Descartes soon took up his abode at Leiden, the scene of the Waessanaer-Stampioen controversy.

This controversy throws a strange light on the manner in which scientific discussions were then regarded, and also, perhaps, on the interest which they aroused. Waessanaer and Stampioen were two young men, the sons of mathematicians at Utrecht and Amsterdam respectively. The latter had written a book on Algebra, which had been heralded by what was regarded as an unnecessary amount of advertisement and self-laudation, thereby prejudicing its readers unnecessarily against it. Young Waessanaer made up his mind to undertake its refutation under the direction of Descartes, who was a friend of his father. When the "refutation" was issued, Stampioen distributed amongst the savants of the country the notice of a challenge made to his opponent, defying him to prove his assertions, and making a wager that he could not do so. Apparently Waessanaer had anticipated the wager, and asked that if such were made the money should be deposited with a professor of mathematics, or given to the poor in the event of Stampioen's losing it. Six hundred livres were duly deposited with the Rector of Leiden University by Stampioen, and the same by Waessanaer, and finally the mathematical professors at Leiden were appointed umpires, others being added later on. Unfortunately, Waessanaer fell ill when he ought to have gone to Leiden, and the affair dragged on for months; but finally judgment was given for Waessanaer, and Stampioen's

money went to the poor. The whole matter seems to have caused intense excitement, and for its sake, as he tells Mersenne, Descartes deferred a journey to France. Nearly three months after judgment was given there was difficulty in getting the money handed over for the use of the poor from the Rector, who made the excuse that he had given it to the hospital instead of to the Kercken-raed: this did not satisfy Descartes' sense of honesty, and restitution had finally to be made.

It was the writing an account of this dispute that prevented Descartes from visiting his father in time to see him alive. He was buried on 20th October 1640, at Nantes, a week before his son's letter to him was sent explaining why he could not come, and entering into his reasons for expatriating himself. He also mentioned his design of writing to refute the doctrines of the Jesuits—an intention never carried out, though there is an interesting letter dated this year to a Father of the Order (possibly, MM. Adam and Tannery think, Père Charlet), saying that "one of his friends" is thinking of writing a comparison between Descartes' teaching and theirs, and also saying that he would not give his assent until hearing the views of those to whom he owed so much respect.* We may judge from no action being taken, that the reply was not encouraging.

Descartes' principles might be unpalatable to the Jesuit Fathers, but they were equally unpopular with the Protestant divines who surrounded him, and to whom his doctrine of beginning with Doubt instead of with Belief carried the most serious consequences. He must often have thought that he was only escaping the interference of the Catholic clerics to receive yet more annoyance of a petty kind from the Protestant theologians. Voet or Voetius specially applied himself to wreck his reputation, and make him out to be an enemy to religion, partly, no doubt, from honest conviction, and partly, perhaps, from jealousy of the new influence which was spreading so quickly over the country. Reneri's funeral oration, and the fuss made over it, had

* *Corr.*, vol. iii., p. 270.

brought matters to a head. It was easier, on the whole, to attack Regius than Descartes himself, and Voetius set himself to undermine his position. Strangely enough, the heresy that he first attacked was the Harveian doctrine of the circulation of the blood. The Rector afterwards took the matter up on the ground that the novel doctrines were disturbing the peace of the university, and at a meeting Regius was besought to modify his opinions. Regius made some small alterations in certain theses, but the alterations were considered to be too slight. He then bethought him of having public disputes on the points of difference, and he asked Descartes to criticise his theses. Not only did the latter do this, but, Baillet tells us, he resolved on taking up his abode at Amersfort, not far from Utrecht, for greater convenience, and offered to come and hear the dispute.* Regius was to be his host, but the arrangement was that in order to remain *incognito* he was to conceal himself in the tribune or box of the famous Anna Maria Schurmann.

This prodigy of learning, now about twenty-eight years of age, was attracting to herself a great amount of attention. She was said to be acquainted not only with all European languages (not excepting Turkish), but also with Syrian, Chaldean, and Arabic. Latin she wrote with perfect ease; with Greek she had an intimate acquaintance, and French she is said to have composed in almost as delicately as Balzac. Besides all this, her artistic accomplishments were no less marvellous in painting, engraving, and sculpture; she appreciated poetry; she was acquainted with mathematics, philosophy, and theology, and disputed with the best.† To crown all, she was sustained by a "marvellous love for quietude, study, and prayer," and practised an abstinence corresponding with the motto she chose, *Amor meus crucifixus est*. She "had not the advantage" of being

* Baillet, vol. ii., p. 60.

† *Ibid.*, vol. ii., p. 61. She was appealed to in a dispute regarding the music of Bannius and Boesset, as to which Descartes gave a very decided opinion.—*Corr.*, vol. iii., p. 261.

born a Catholic; but being deeply religious, and finding the ministers of Utrecht insufficiently zealous, she placed herself under the direction of others until the time when she became influenced by Labadie, the Mystic, who was regarded as a schismatic by the orthodox.

Though it is impossible to believe all that is told of this wonderful woman, her reputation proves her to have been a remarkable and striking figure. Descartes was certainly interested in her, as he was in all distinguished women. But at once he detected what he conceived to be the greatest danger in her career, in her exceeding interest in theology. Voetius became her instructor in this science, and her attention was engrossed with theological disputes, "which caused her to have no further interest for sensible men."* Later on a warm friendship obtained between her and Descartes' intimate friend, the Princess Elisabeth of Palatine.

There is no record of the public Disputation, but Voetius' anger seems to have increased, and Descartes urged Regius to moderation in the tone of his replies, and begged him to be more careful in his mode of expression as regards the University authorities. Descartes had in view the publication of a short exposition of the new philosophy, in the form of notes on the propositions of some standard scholastic treatise, with a comparison between the old philosophic system and the new. He had evidently got none of the scholastic handbooks in his possession, for he speaks of buying a copy of S. Eustachius, and in another letter he asks for the names of standard scholastic systems, as he can recollect only those of the Conimbres, Toletus, and Rubius (*i.e.*, those of the Jesuit College of Coïmbre in Portugal, of F. Toledo, and another Spanish Jesuit, Rubius or Rubio).† This shows that probably he had forgotten much of the learning of his boyhood. Whatever project he had in view he wished that it might not be referred to, since he was anxious to keep in favour at the Sorbonne. The *Meditations* were

* *Corr.*, vol. iii., p. 231. † *Ibid.*, vol. iii., p. 185.

awaiting publication, and any difficulty with the theologians might have been serious at this special juncture. In writing to Mersenne, it is curious to notice the certainty Descartes always shows that his doings are known to the Jesuit Order; and when his anxieties increased, he goes so far as to say that it might be better for him were open war to be declared, though he would prefer peace were it obtainable. It is evident that serious difficulties were approaching in that direction.

It was about 1640 that Descartes appears to have had some idea of going to England, a country which, he says, he would prefer to many others as a dwelling-place, especially as it was one in which the king "was at heart a Catholic." Besides Sir Kenelm Digby, Descartes had an English friend in Sir Charles Cavendish, the brother of the Marquis of Newcastle, with whom he came into relationship later on. Sir Charles, who probably, like Digby, invited him to come to England, had been much impressed by the writings of Descartes as obtained through Mersenne. Sir Kenelm Digby, his other English admirer, lived in Paris from 1636-1638. He made Descartes' acquaintance in 1641 on a later tour abroad; when, indeed, he paid him a visit of a week.* He does not appear likely to have proved a very congenial spirit, being, with all his philosophic tendencies, credulous and unrestful. He wrote on the Immortality of the Soul and on the Nature of Bodies, but Descartes did not know English, and hence did not read his works. Perhaps he and Mydorge (who was pressed to go to England by the king) might have been inclined to accept their invitations, but that the troubles in England were threatening, and they had doubts as to whether the war would not drain away the money intended for the advancement of science. Besides, Descartes wisely says that if he did go he had rather go for his own pleasure than be drawn by the promises of a man he had never seen. This refers, of course, to Sir Kenelm's invitation.

Whenever things seemed going better with the

* *Corr.*, vol. iii., p. 90.

Protestant party, Descartes was subject to an attack from his other foes (as they soon declared themselves), the Jesuits. This trouble affected him much more than any difficulties with the Protestants, in view of what we must believe to have been his sincere regard for his old instructors. Besides this, he had strongly impressed upon his mind the unity of the Order, and he felt assured that if one member of it made a certain statement it was sufficient to indicate that the whole Order held similar views. Thus when Père Bourdin of Clermont (and formerly of La Flèche) put certain objections to Descartes' mathematical theses before his pupils, instead of sending them to himself, he took for granted that Bourdin's opposition meant that of the Order to which he belonged. A regular discussion was held respecting the Cartesian doctrines, of which Père Mersenne sent an account, and this Descartes took as an insult and as a condemnation of his doctrines without calling for his defence; consequently he wrote to the authorities of the college, in Latin, vigorously defending himself and begging for a thorough examination of his works. Baillet thinks that Descartes did not sufficiently realise that the affair was but a *jeu d'esprit* largely for the benefit of the students, and that the preliminary attack was but the formal beginning of the discussion. He, however, had made up his mind that the battle with the Jesuits was now to be fought, and that they must be fought, not merely as individuals but as a body. Mersenne and Mydorge made an attempt to put an end to what promised to be a somewhat angry correspondence by omitting to forward a letter of Descartes'. However, Descartes insisted, and Mersenne was quite happy to be a spectator of a learned quarrel. After much correspondence between the parties most interested, which makes one think of the preparations for a duel, matters came finally to a head.

The prospect of a great dispute engrossed Descartes' attention entirely; he was promised further communications in the course of months, and he decided not to go abroad during the winter of 1640-41, as he had thought of doing, but to devote himself to studying the philosophy

of the schools. Mersenne was delighted at the prospect of an attack upon the scholastic system, and urged his friend to proceed. The suggestion was that a system of the old philosophy should be published along with notes on each question treated, and in conclusion the treatise was to have a comparison between the relative merits of the two methods. The system of Eustachius was suggested as a basis, but it was pointed out that it would be better to delay matters until it was seen how the *Meditations* were to be received. However, instead of waiting, Descartes promises in December to send Mersenne at once a condensed account of the principal points affecting God and the soul, and this was just after the manuscript of the *Meditations* had come to him for revision and publication. This abridgment eventually preceded the *Meditations*, and took the form of a synopsis which was to come after the letters to the Faculty of Theology at Paris and to the reader. Hence, after much correspondence, the dispute merged into a criticism of the doctrines of the *Meditations* with the author's replies thereto.

Descartes' life at this time was thus mainly occupied with study and dispute, and it may be that it was also somewhat self-centred or self-engrossed. A real grief, however, had disturbed the monotony of its course. Descartes had, as before-mentioned, one child, Francine, now five years of age, whom he wished to bring up in France in a manner suitable to her position as his daughter. Just as he was arranging for her being put under the guardianship of a lady, the child died at Amersfort, on 7th September 1640, after an illness lasting only three days. This he declared was the greatest sorrow of his life: the history of the child was written on the fly-leaf of a book, so Baillet tells us, which shows that Descartes made full confession of his fatherhood; but he appears to have told Clerselier that his relationships with the mother were of short duration, and, so far as we can tell, this would seem to have been the only liaison he ever had.

It was after the child's death that Descartes moved

from Amersfort, where he had gone in spring, to Leiden. It is apparently from Gillot's house at Leiden that he writes to Wilhem about the serious illness of his little daughter, whom he had visited, and in whom he seems to have had much interest, perhaps on account of the love he bore to little Francine. Soon after Francine's death Descartes lost his father, as has been said. The event took place at the second wife's country house, and it shows the relations which existed between the various members of the family, that Descartes was not at once acquainted with the fact. Baillet tells us that his family (excepting his father) despised him for the odious title that he bore of *philosophe*, and tried to banish him from their memory as a family disgrace. Time in such matters has its revenge. The father left him some share of property, but Descartes did not deem it worth while going to claim it, but made his friend, De la Villeneuve du Boüexie, his business representative.

The *Meditations* (called "Meditations" in contradistinction to the "Disputations" of the schools) were published in 1641, but the preparations for their publication greatly occupied Descartes' attention all through the previous year. Probably he felt depressed occasionally about his prospects of making his system recognised, so much opposition seemed everywhere to abound. He writes to Huygens as though his life were useless, and makes little of the work so eagerly expected by his friends, as merely an elucidation of the fourth part of the *Method*, of which he would only publish a few copies to give to the principal theologians of France, in order to hear the verdict they gave upon it. Indeed, this approval by the learned was evidently an almost essential matter in Descartes' mind, and it was the subject of much correspondence. Galileo was still alive (though Descartes professes his ignorance of the fact), and in Descartes' view there was real danger in publishing heterodox opinions. This might be an exaggeration as far as he was concerned, but, short of danger to life, there was infinite trouble and worry before a man who

made such ventures, and worry was, above all things, what a sensitive man like Descartes hated; not his utmost efforts to find a peaceful retreat appeared, however, to permit him to escape such troubles. Every criticism—even the criticism of an incompetent critic—was as a sword-thrust to him.

The matter of the treatise had, of course, been for a long time in its author's mind—ever since the Friesland days, indeed, when he first devoted himself to the study of Truth in solitude. All this time, as he himself says in a letter, he tried to give himself to the investigation of *things*, and not merely to that of *names*. But the bringing of his thoughts to light was as usual with Descartes a matter of the extremest difficulty. The book, he decided, was to be printed in Paris, in case the Dutch ministers laid hold of it, and twenty or thirty copies were to be printed off for special friends. Since he was bent on obtaining the approbation of the whole faculty of theology in Paris, and as this seemed hardly practicable, all that could be done was to ask for their careful examintion of his work. The volume was printed *Cum privilegio et Approbatione Doctorum*, but what this last means is not clear: it may simply have been the general approbation of the learned of the day.* The author claimed, at any rate, that he was rendering orthodox religion the greatest service by proving the immortality of the soul, and the existence of God, and asked Gibieuf to enable him by his help "to defend the cause of God." The manuscript copy of the work, as also a criticism from a priest in the Netherlands, and letters to Mersenne and Gibieuf, were sent in a packet to Descartes' friend, Huygens, and owing to the latter's being away from home, were delayed *en route*. Mersenne was given entire charge of the publication, though Gibieuf was to advise him; he advised that the title should be *Meditationes de prima Philosophia*, but begs Mersenne to be its sponsor, and baptize it as he

* Neither this nor the royal privilege was mentioned in the second edition published by L. Elzevir in 1642 (*Corr.*, vol. iii., p. 419).

wished.* The book was written for the learned, and in their language, and it was published finally by Michael Soly in Paris "at the sign of the Phœnix," on 28th August 1641, but it did not reach the booksellers' shops in Holland till three months later.

Père Mersenne had hardly received the manuscript before criticisms began to reach the author. The first was from Mersenne himself, complaining that there was nothing said about the Immortality of the Soul as promised by the title; Descartes at once replied that his "proof" lay in the demonstration of the soul being entirely separate from the body, and of another nature. He, however, changed the title of the second Meditation, and sent a week later a summary of the work, containing a statement of the principal points regarding God and the soul, which was to precede the main body of the book. At the close he decided to put the objections which came from Caterus, a priest of Holland (at the instance of Blœmaert and Bannius, two clerical friends of Descartes at Haarlem), and also the author's reply. Objections he says he wished for, believing that they would merely serve to elucidate the truth, and he trusted that his own doctrines were stated so moderately that the most prejudiced Aristotelian would not perceive his principles to be really inimical to those of the schools.

Mersenne sent the "Objections" he received in Paris to the author of the treatise early in 1641. These were more or less appreciative, and Descartes answered them with care; to satisfy his objectors and at their special request, he also wrote a geometric proof of the existence of God, and a similar demonstration of the distinction between mind and body by means of definitions. The whole is named the "Second Objection." Then came through Huygens a small book by Morin, with the writings of an "English philosopher," known to us as

* The title of the first edition was *Renati Des Cartes Meditationes de prima Philosophia, in qua Dei existentia et animæ immortalitas demonstratur;* in the second edition it ran . . . *in quibus Dei existentia et animæ humanæ a corpore distinctio demonstrantur.*

Thomas Hobbes. Morin's treatise was on God, and Mersenne considered that it was written in a wholly unscientific spirit, while Hobbes' contribution was more interesting. Thomas Hobbes, like Descartes, had abjured the philosophy of the schools, but he had not reached Descartes' professed conclusion that the fault of the old philosophy lay in its manner rather than its matter. Before the new inspiration given by the latter had ever been forthcoming, and while men were only talking of him, as one from whom something unexpected might be received, Hobbes spent a considerable time in Paris, in his capacity as travelling tutor, and gradually acquired a reputation for learning. It was in Paris, and when he was aged forty, that his studies had turned in the direction of mathematics, and that he learned something of what his contemporary had been acquainted with since boyhood. Geometry was not studied at Oxford until after Hobbes' departure from the university, and to most men of the day it still savoured of the black art with which too much acquaintanceship was not to be desired. The Jesuits of La Flèche were thus, comparatively speaking, advanced in their educational views. Hobbes, after a visit to Italy, where the influence of Galileo's teaching was a deeply impressing force, was gladly received by the scientific côterie bound together by the friendly influence of Mersenne, who had the faculty of retaining the constant friendship of scientific men of all sections of opinion, while yet he preserved his own reputation for orthodoxy. Descartes' method had just awakened the world of thinking men to a larger view of the meaning of existence than had been supplied by any philosophic system hitherto pursued, or even by the new physical doctrines which had emanated from the influence of Galileo; but Hobbes never comprehended the significance of the Cartesian system: he found satisfaction sufficient in the interpretation of the world of nature and of society upon principles of sensation, without seeking to soar higher. His scientific outlook was entirely objective in its character, and therefore, by the younger philosopher, the "Englishman" was held in low esteem. At

the time at which the *Meditations* were written, Hobbes had once more returned to the quietude of a land where men of letters could occupy themselves in peace, undisturbed by the wars which threatened them in England. Mersenne welcomed him all the more since he was, in his capacity as friendly critic to Descartes, collecting "Objections" to his newly published work. Hobbes had no difficulty in formulating sixteen of these, which were anonymously forwarded to Holland; but Descartes found the author much more interested in the expression of his own views than in the criticism of another's, and his patronising tone was galling to Descartes' sensitive soul. The two may have met later on in Paris, but certainly did not do so at this time, nor was there much in common between them. Hobbes' criticism on the *Dioptric*, which followed later, Descartes seems specially to have resented. He writes to Mersenne that he would prefer to have no further dealings with its author; if they met they would only become enemies.*

The "Objections" of Hobbes were printed along with the rest, but the plan of writing an account of the philosophy of the schools, with the view of refutation, was given up.† Descartes considered very rightly that it was better to establish his own position than to refute that of others. The fourth set of "Objections" was the only one which came from the faculty of theology, and it was written by one who was destined to reach fame in connection with Port Royal. Arnauld, now only twenty-eight years of age, and not yet a doctor, had read and appreciated the *Method*, and was given permission to read the *Meditations* in manuscript, on condition of his acting as critic from both the philosophic and the theological point of view. Perhaps nowhere could a more excellent critic have been found than the keen young theologian who was to play so great a part in the history of thought in France. Clear, well-reasoned argument appealed to one whose reasoning was nothing if not logical and accurate. The most remarkable of the remarkable family which did so much to make Port

* *Corr.*, vol. iii., p. 320. † *Ibid.*, vol. iii., p. 470.

Royal famous, had just completed the term of preparation for his theological licentiate, during which he had to sustain certain public disputes; his final theses were sustained in December of this year (1641).* Already, however, men had learned to appreciate the keen, religiously-disposed but philosophically-minded young theologian, and Descartes was highly satisfied to have an opponent such as he. Later on, when troubles overtook him, Descartes was sincerely sympathetic. He never made his personal acquaintanceship, but in the year 1644, when in Paris, he sent a young ecclesiastical friend to visit him, and near the end of his life, as we shall see, he carried on a most interesting correspondence with him.

Another critic approached his subject in a very different spirit. Pierre Gassendi, once a peasant boy of Provence, became professor of philosophy at Aix, and a bitter opponent of Aristotelian views; he advocated Atomism in their place, and made the doctrines of Lucretius and Epicurus his special study. This was a time when science and religion were "reconciled" in the minds of the philosophers of the day in a manner difficult for us to comprehend, and the materialism of Gassendi was not regarded as inconsistent with his clerical office. The dogma of the Church was, so to speak, assumed, and "the facts of experience" supplied all that was wanted for constructing the requisite theories of the universe and of life. Gassendi came to Paris in 1641, just before the publication of the *Meditations*, and, of course, immediately made the acquaintance of Mersenne, the friend of all contemporary philosophers, and the bringer together of all schools of thought. The Father, always anxious to help his friends, and at the same time to have the interest of a free and open discussion of subjects of moment to the learned of the day, at once produced the precious manuscript, which he gave for his perusal on the condition that "Objections" should be duly formulated. Descartes and Gassendi had hitherto been acquaintances, if not friends; a certain coolness

* *Port Royal by Sainte Beuve*, vol. ii., p. 16.

appears, however, to have arisen between them. Gassendi may have thought some acknowledgment was due to him which never was accorded. He wrote out his "Objections," and sent them to Descartes, with a letter full of compliment, which Baillet thinks wholly insincere, and the fact that Descartes replied in similar style (his letters were always curiously adapted to the style of the individual to whom he writes), annoyed him.* However, after this the correspondence became more outspoken, and Descartes confessed to Mersenne that he held Gassendi in small esteem, and found difficulty in treating him as he should.

The "Six Objections," with the matter of which we shall deal more fully, were at length collected by Mersenne, carefully transcribed by Descartes on receiving them for printing with the text, and the whole were returned by him, along with his "Replies" (a word which Descartes preferred to "Solutions," which latter seemed to imply a want of consideration to his opponents).† It is strange to reflect that after all the elaborate preparations made for its appearance under the best auspices, the book was placed upon its Index twenty-two years subsequently by the Church of Rome —the Church its author tried so hard to conciliate.

At this time (1641) Descartes had obtained what would seem to have been a fixed and permanent abode, after his frequent wanderings from town to town. He had settled at a charming country house, still extant at Endegeest, though in a somewhat enlarged form. It was not far from Leiden, and within a comparatively short distance of the Hague, where he made so many friendships. A more pleasant retreat for a philosopher it would be difficult to conceive: the house is of characteristic sixteenth century architecture, surrounded by beautiful old trees, and entrance is obtained through a picturesque old archway: on one side there is water resembling a sort of moat, and beyond a park which reminds one of an English country house. On this park the room, octagon in shape, known as Descartes'

* Baillet, vol. ii., p. 135. † *Ibid.*, vol. ii., p. 137.

study, looks out. We have a full account of the appearance of the place as it was in Descartes' time from the pen of the garrulous and gossiping Sorbière.* He narrates how he visited Descartes in 1642 at Endegeest, half a league from Leiden, in a little château, which he says is very beautifully situated at the gates of a great and fine university, and *deux petites heures* from the sea. Descartes had, he tells us, a sufficiency of well-selected servants, and surrounding him meadows from which church spires were seen on the horizon. One day's journey would take him to Utrecht, Delft, Rotterdam, Dordrecht, and Haarlem, and occasionally he made a journey to Amsterdam, where he possessed "2000 *livres de rente en banque.*" Descartes' father's death may have accounted for this last, and made him better able to maintain a full establishment.

* *Relations, Lettres, and Discours de Sorbière*, pp. 677-681 *seq.*

CHAPTER VII

THE "MEDITATIONS" AND ITS CRITICISMS

THE *Meditations on the First Philosophy*, as we have seen, is prefaced by a dedication to the "most wise and illustrious" dean and doctors of the sacred Faculty of Theology in Paris, in which the author solicits their protection on the ground that the work he is undertaking is to prove (what, of course, requires no proof to those who are established in the Faith) the existence of God and the immortality of the soul. In reading these professions of ultra-orthodoxy, we must recollect the manners and beliefs of a century in which scepticism seemed easily to combine with a life profession of perfect orthodoxy. It was not considered incompatible to share the views of Montaigne, and yet hold oneself the while a good son of the Church; indeed, an orthodox profession usually accompanied that curiously inquiring mind, so characteristic of the century. Descartes, however, was not by any means a sceptic; certainly he was not so in the same sense as so many men of his day; all that he wished was simply to be able to formulate his position, to face where he could the difficulties which were usually glossed over by the formulæ of Belief; and to do this required a courage which we in these days hardly can appreciate. Having taken the step not only of asking, "What is Truth?" but of stating in clear, simple language that Truth can be discovered if we honestly try to find it, Descartes never wavers. He is determined to make the lesson he has to teach evident to all men; there is no hesitancy in his statement of it,

whatever his efforts after conciliation may at other times have been. We may, and indeed we must, he says, consider the powers that be, the theologians whose opinions, however they have been undermined by the inquiring spirit of scientific research, still count for so much; but we must also show that there are great truths which form the groundwork for all true belief, and that these are to be discovered by "doubting" what has not been obviously demonstrated. The mere statement of "facts" is no proof: this was the great lesson that was being learned at this time of new awakening to the meaning of Truth. The theologians of the Sorbonne had to learn this lesson, as all others have to learn it; they had perforce to consent to have the dogma they maintained so strongly examined by the light of reason. God must be known, Descartes teaches, not merely as an external fact, but even from ourselves. If the Method of which he had written so much was to be efficacious in this most important of all spheres, then the immortality of the soul and the existence of God should by its means be demonstrated beyond the power of refutation. If the Method were to fail in this, it would fail in all. This new work was not to appeal to the common herd; it was intended for those who wished to think seriously on the deep things of life, on God and immortality—the most serious of all topics for men to consider. The *Meditations* is not like the *Method*, a charming and attractive biography as well as a philosophy of existence, it is a book which must be deeply pondered over and meditated upon; a study of Truth in its highest aspects, and as such it ranks with the classics of philosophy.

Descartes writes a short preface to the reader, in which he further explains his plans, and states the objections made to his system as it was expounded in the *Method*. He promises to show, as others after him tried to show, that thought is conscious of itself alone. From the consciousness that nothing but thinking pertains to the essence of mind, nothing can so belong to it. The idea of God, if taken in the proper sense—the idea of something more perfect than myself—implies, he tells

us, the existence of this thing. The errors of the atheists in his view are due to their anthropological ways of looking at God, and to their forgetting the fact that while men's minds are finite, God is infinite. These atheists, professed or unprofessed, were indeed no small band. Mersenne estimated that there were 50,000 of them in Paris alone in 1623, though naturally this probably included many who would not have dreamt of calling themselves by such a name. The necessity for a "proof" of the existence of God and of immortality was perhaps never so necessary as at a time when all men made a profession, and few really believed, excepting those whose office demanded a belief. The proof might not lead just where Descartes professed in his letter to the doctors, but at least it led to honesty and truthfulness, which was more important than mere lip-profession or external observance.

After giving a synopsis of the six Meditations which were to follow, Descartes plunges into the question of Philosophic Doubt. Now arrived at the mature age of forty-five—beyond the middle of life's pathway, and in possession of leisure and peaceable retirement—he felt that the time had come at which, if ever, he should be able to formulate his opinions on what was of most vital import. Thus, he feels it requisite to attempt that task which none ever truly accomplished in its fulness—the task of brushing aside all preconceived ideas and beliefs, all these at least which conceivably might be false, and starting anew with a criticism of the principles on which these beliefs were founded.

With regard to the information which has come to us from the senses, the task was comparatively an easy one: we *may* be deceived as to this, our brains may be disordered, our perceptions clouded. But all through our deceptions one fact, he says, remains clear: I am a man; it is I who suffer these delusions; I dream, and though these objects that I conceive may be imaginary, I could not imagine them unless there were realities from which I derive my conceptions. My wildest imaginings cannot create but only mingle conceptions

previously received, whether of colour, form, or anything else. The conclusion thus formed is that certain sciences, such as those of physics, astronomy, and medicine, are, in so far as they have under their consideration what is composite in character, doubtful, or what we should call empirical. On the other hand, arithmetic, geometry, and the like, which regard the simplest and most elementary objects, and do not concern themselves with their real existence, are absolutely certain, for their "facts" cannot alter whether we are asleep or whether we are awake. As far as ordinary opinions are concerned, however, we must force ourselves to consider that they may be untrue, that if they have been implanted in us by God, He may have allowed us to be deceived in all as we are certainly deceived in some: all external things may be illusions, and one fain would rest in one's old sleep of ignorance in order to escape from the laborious and painful wakefulness which knowledge carries with it.

This is the substance of the first Meditation on Reality, and it once more strikes the keynote of all Descartes' system of philosophy. What is Knowledge? Is it what it seems, or is it but a myth? Are we living in a world of pure illusion? It is not till we face that question that we can be said to begin to know; the keen pangs of doubt must have been ours before we can reach the goal desired, before we begin to learn aright; the pathway to Knowledge is not an easy one to tread. Descartes had reached a certain stage, and a very necessary one, in the journey to true Knowledge. It was, however, but the first step in the revolution that was about to come to pass in thought. Thought was awakening to what it meant. The deadness of the old scholasticism was giving way to a time of questioning on every hand. And the first stage in this revolution was the asking of the question, what do I believe and why do I believe it? Questions there are which come sometimes with overwhelming force upon the race, just as at one stage or another they come upon every thinking individual.

The second Meditation begins from the standpoint of despair; all seems false or at least uncertain. As the old sceptics used to say, "Philosophers come into the world as into a great house to seek the truth; but did they find it they could not know that they had succeeded in their quest."

But then it comes home to us, as Descartes shows, that, after all, the sceptical position is not everything. I have been persuaded that there was nothing truly in the world, in nature without, or mind within; but just because I have been persuaded, surely do I exist. I may be deceived by one whom I call God, it is true, but I am, since I am deceived. Thus we reach the first and most important stage, and say that I exist. That is an argument brought forward by St Augustine in a very similar form, but its far-reaching consequences were hardly at first perceived. It might, indeed, be that there is more in the "I exist" than the mere assertion of existence or of Being; but still we have in it the groundwork of idealism; if we take for granted the fact of Being, we can build up a theory of Knowledge such as the idealists present.

Descartes, however, goes on to define the self of which he is conscious, and whose character he believes he can describe. What, first of all, must be eliminated? Can he call himself a man possessing body—walking, perceiving, thinking? None of these properly pertain to *me*, excepting one, and this is Thought. I am, I exist, in so far as I *think;* I am a thinking thing or a mind. I am not what I call a body, nor the all-pervading vapour, breath, or what not, diffused throughout the body: I supposed these all to be non-existent, and yet I feel certain that I exist without depending on any outside things. I am that which doubts, understands, affirms, denies, wills, refuses, imagines, and perceives, even if I only imagine that I do these things: and this implies that I *think.* And now what I am begins to grow more distinct. If we begin to consider any outside object, we find that the qualities we observe in it may alter, its form may change, its extension seem to differ. The

mind alone perceives it; and the perception is not an act of sight, of touch, nor of imagination, but a mental act which may either be confused or else perfectly clear and distinct.

The position thus taken up is very strong. Thought creates things, not things Thought. This is the principle of subjective idealism: we easily discover that all things can be proved to be unreal. If we take any particular conception and carefully examine it by itself, we seem to find in it a principle of contradiction: we seem to find a contingent element everywhere until we begin to bring Thought to bear on the recalcitrant elements. Thought creates and unifies; it makes the inexplicable explicable. But Thought in Descartes' sense was subjective, and hence his system tended to become the same, or else to take for granted an unrelated outside world which it could not hope to explain. Descartes perceives that it is our judgment that enables us to make assertions as to what we could not know simply from appearances, and this judgment pertains to the human mind. If I am persuaded of a certain existence, he would say, it must follow that I am. My mind is to be clearly apprehended, and that is the matter of principal importance, as it is indeed the starting-point for a constructive system.

In the third Meditation the author sets himself to come to a better knowledge of himself as a conscious being, doubting, affirming, denying, knowing, imagining, perceiving. I think, but what renders me certain of a truth? All I know, he says, is that it is the clearness and distinction of my perceptions that assures me that what I say is true. Outside things I thought I had clearly apprehended, and yet I could not be sure of their existence; but as regards statements in Geometry and Arithmetic I am on safe and certain ground. God may prove to be a deceiver, but no one can show that I do not exist, nor that contradictions such as that two and three do not make five are true. Still I must consider whether there is a God, and if so, whether He may prove to be after all a deceiver. Hence, I must proceed to divide

my thoughts into various classes and see where truth and error are to be found.

Thought Descartes separates first into ideas or images of things, and secondly into judgments, volitions or affections, and he considers that it is in the latter alone that we may be deceived, more especially by judging that the ideas within us are conformed to the things without us. Thus it is necessary to consider the grounds on which we think them to be like these objects. On examining these he comes to the conclusion that ideas regarded as modes of consciousness may be said to proceed from oneself, but, considered as images, some represent substance (and have more objective reality) and others are mere modes or accidents; and the idea of God has more objective reality than the ideas by which finite substances are represented. Then he goes on to say that the idea cannot be present without a cause as real as it itself is; the idea may fall short of the perfection of the object from which it is taken, but can never be more perfect. He argues that if I have an idea which does not exist in me, and of which I cannot be the cause, I cannot be alone in the world; some other being must give rise to it. All this he applies to the idea we have of God, which differs from that which we have of corporeal things or of men, animals, or angels: these last may come by mingling the ideas I have of myself, of corporeal things, and of God, though apart from myself there were neither men, animals, nor angels. Of corporeal things indeed there is little clearly and distinctly perceived. Extension, figure, situation, motion, substance, duration, and number are of the things clearly perceived and distinct, some of which are such as might have been taken from the idea I have of myself, and some of which if not formally in me may be so eminently. But it is from the idea of God which cannot originate altogether in myself that God's existence is proved; I could not, he proceeds, have the idea of infinitude from a finite being, and this sense of infinitude comes before and is not derived from the sense of finitude. If the individual could be the author

of his being he would himself be God. But conservation partially means re-creation: I am in no way conscious of having the power of continuing to exist, and I know thereby that I am dependent on another. This other I find necessarily corresponds to the idea I have in me of God, as it is also self-existent, having all the perfections I conceive to belong to God, one of which is that of a unity of perfections. God has implanted this idea in me as the mark of the workman is implanted in his work. I am incomplete and dependent, ever aspiring after something greater and better; but He on whom I am depending possesses all to which I aspire. I could not have these aspirations without Him. Just as we learn by faith that the supreme felicity of another life consists in the contemplation of God, so such meditations, though incomparably less perfect, are the source of our highest satisfaction.

Such proofs of God's existence lay themselves open, of course, to trenchant criticism, and yet in this reasoning we have the groundwork of something which was to be worked out later on. Descartes' theory of Knowledge includes in those things "clearly perceived" conceptions, such as those of extension, substance, time (duration), and motion, which remind us of the Aristotelian categories. But he does not look at Knowledge as an entirely outside thing; he realises that the idea of infinitude cannot be arrived at from without, but must presuppose our knowledge of the finite; in fact, his Thought is infinite as well as finite, and this is a great step forward.

The fourth Meditation concerns the subject of Truth and Error. Descartes is clear that we know more of the Mind and of God, than we do of corporeal objects. When I am absorbed, he says, in the contemplation of God, and there is no cause of error in me, then I cannot fall into sin; but there is a negative idea in me likewise, which leads me into evil—that is, I am as it were a mean between God and nothing, between Being and non-being. I participate in some degree in non-being: and

thus he argues error is not a real thing, but simply a defect. Why this imperfection is in me I cannot tell. I am endowed with understanding and will, though not to an unlimited extent: my errors, however, do not result from this, but from my want of restraint of will, whereby I choose evil rather than good.

We have here an interesting, although only partially worked-out theory of morals in which evil is explained as being a necessary part of a complete system of the universe. To a certain extent it meets the question that is always confronting us, of why these things should be, and it gives a rational account of their existence. If evil is regarded as utterly evil, we could not, in Descartes' view, rationally explain it, for it would be outside our ken and inexplicable; as an abstract conception, however, we can see its reason. My errors arise from the want of restraint exercised on my will, from choosing the false rather than the true; if I form a judgment of a thing which I do not conceive with sufficient clearness, I do not make a right use of my free will. If I affirm what is false it is evident that I am deceived. The knowledge of the understanding ought always to precede the determination of the will. It is the wrong use of the freedom of the will in which is found the privation which constitutes the form of error.

In the fifth Meditation Descartes returns to the existence of God, and also considers the existence of material objects. He expresses his very distinct conception of extension both as continuous and discrete. As to ideas of objects not really existing excepting in my thought, they are, he argues, true, since they are clearly *something*, and "all that is true is something," and "what is distinctly known is true." At this point there comes again the argument for the existence of God: my idea of God as a perfect being is certainly present in my consciousness: Can His existence be separated from His essence any more than a valley from a mountain? I cannot conceive of a God excepting as existing, whereas I could so conceive a mountain or valley. I cannot think of God without attributing to

Him all perfections, and I can conceive no other Being to whose essence existence belongs. When I clearly and distinctly conceive anything, then I am forcibly persuaded of it, and of the existence of God Descartes felt so absolutely convinced, that the certitude of all other truths in his view depended on it. This to him is, so to speak, the fundamental truth that preserves us from scepticism regarding ordinary knowledge.

Descartes' conclusions about Reality remind us of the Hegelian dictum, "the real is rational and the rational real." He seems to come to a very similar conclusion in saying that all that is true—and by truth he means that which commends itself to our minds, judgment or reason as such—is *something* or real. What we actually know distinctly and clearly is, he maintains, true, and also what commends itself to our minds as such. The difficulties which such a doctrine carries with it, were, of course, in later days set forth by Kant; an idea of something, however true in itself, is not the *thing*, therefore let us turn from Locke's theory of ideas of outside things, which somehow become related to our minds, just as we turn from the illusionary connection which is supposed to exist by Hume, and say that as Knowledge cannot be brought about by things, we must start where Locke would end, and form a Theory of Knowledge rather than a System of Ideas. This was followed by the Hegelian unity of Knowledge as embracing both sides —the Knower and the Known—in one complete whole, only separable by abstraction. Now Descartes seems often (just as in this Meditation) to come very near this later standpoint: the unity between the ideal and the real was brought before him vividly, but unfortunately, he did not as yet realise exactly what it meant; for him the idea and the thing were still separate entities, even where he asserted their oneness, and the work of proving the two sides to be neither of them sufficient for a satisfactory explanation of Knowledge by themselves, had still to be accomplished. But the proof of the reality of all truth, and more particularly of God, undoubtedly approaches what is now called the doctrine of Absolute

Idealism; and we can understand how Descartes is regarded as one with whom a new epoch began, since with him, as Hegel says, "Thought necessarily commences from itself." *

The last Meditation goes on to consider whether material things exist, and how mind and body are distinguished. Descartes considers that we have both a faculty of imagination which enables us to apply the cognitive faculty to a body which is immediately present to it, and seems therefore to exist, and a purely intellectual conception, which does not necessitate the special mental effort that is necessary to imagination. In imagining, mind turns towards body, and contemplates in it some object corresponding with the idea which it either conceived of itself or apprehended by sense; but from my distinct idea of corporeal nature in the imagination I cannot necessarily infer the existence of any body, though I still conjecture that body exists. But besides the corporeal nature which is the object of pure mathematics, there are many other objects less distinctly imagined, that are held to be true: and how do we apprehend them? We have certain sense-perceptions, Descartes tells us, which come to us without our consent, and which must proceed from some object other than ourselves, and I judge (he says) that the objects are similar to the ideas caused, and that all my ideas have come to me through the senses. But then errors in my judgment were discovered; what seemed one thing turned out to be another, and I thought I might have been deceived: in fact, doubt begins to arise. I, however, know that I exist, and having a distinct idea of myself as a thinking thing, and also of body as an unthinking thing, it is clear that I am distinct from my body, and may exist without it. I have likewise certain faculties that cannot exist apart from a corporeal or extended substance in which they inhere. In me there is a passive perception which would be useless, if there were not an active faculty capable of forming and producing those ideas often against my will. This faculty must, therefore,

* Hegel's *History of Philosophy* (English translation), vol. iii., p. 224.

exist in some substance different from me, and by a process of exclusion Descartes concludes that the substance in which this faculty exists is corporeal in nature. The dictates of nature, Descartes holds, teach me that I have a body, and by nature I understand God Himself, and the disposition established by Him. Nature teaches me that my mind and body are so constructed as to form a certain unity, as it teaches me about outside bodies and their character; but Nature, apart from mind, does not entitle me to draw conclusions, for it is mind, not mind and body in a complete sense, that would appear to discern the truth; and thus in all my judgments I must be careful not to accept the seeming for the true. The composite whole of mind and body may draw conclusions clear enough for its purposes of deciding what is beneficial and what hurtful, but its conclusions must not be regarded as infallible rules by which to determine the essence of bodies outside of me, seeing that the knowledge afforded is at the best obscure. Why, we may ask, does the goodness of God allow this deception to exist in the nature of man? The mind is, first of all, one and indivisible, while the body is divisible, and thus they are entirely different. The nature of man, in so far as it is composed of mind and body, cannot but be sometimes fallacious: nerves may carry a wrong message by producing a sensation in another part from that in which the excitation has taken place, and the message may deceive us from special causes, such as those of disease. My nature is liable to err, but we have the power of recognising and correcting these errors, just as we learn to distinguish sleep from wakefulness.

In this Meditation we find the Cartesian system of psychology clearly enunciated. Descartes had a hard task before him, and he felt the difficulties of his position. He had to show, from his point of view, how he could be sure of an outside existence—the existence which was destined to become more and more shadowy in the ideas of his successors. We have an "intellectual conception," evidently pointing to outside realities, and certain "sense perceptions" coming from objects outside

ourselves, and we "judge" that the objects correspond to the ideas. Descartes himself seems to see the weakness of his case, for the question of how we are to know that our judgments are correct, and that we are not living in a fabric of deception, presses itself home upon him. But the only difficulties that occur to him in setting forth this conception are those in which we actually *find* ourselves deceived; he does not consider that we may be endlessly deceiving ourselves without discovery being made, or at least he does not place this view before us, as was afterwards done by others. He holds, indeed, that there are truths such as those contained in the higher mathematics, in which we may be certain of our ground, but in those less clearly apprehended, or in which we find our subsequent conclusions to differ from our first impressions, *i.e.*, when doubt arises, we would seem to be lost. Descartes, however, takes his stand on the ground of the certainty of existence as thinking, and of body as unthinking: from this he argues that as ideas are created in me, they must be created by an outside substance, and so long as we comprehend clearly enough, our convictions must be true. In Descartes' view nature's teaching must be, so to speak, corroborated by mind. The means by which Knowledge reaches the mind (which are capable of being deranged as may be the parts of a machine), may cause error to occur when mind and body are taken together. Thus we have the existence of a matter distinct from the mind on which it operates, regardless of the fact that matter could have no meaning independently of the mind that gives it its relations and significance. Still we have also the sense running throughout all Descartes' reasonings (even where he does not keep it before him clearly), that there is a unity which must be present in our lives connecting that which is, and discarding what merely seems, and this is in itself an important advance in philosophic speculation.

The formal "Objections" to the *Meditations* were finally increased to seven. The first was that of Caterus,

the Dutch theologian, who was really an appreciative reader, though his criticisms as affecting the conception of the idea were important in themselves as foreshadowing much criticism that was to come respecting Descartes' conception of Truth. The Second Objections were collected by Mersenne from different sources, and are very varying in character; all, however, concern certain difficulties which occur in Descartes' mode of reasoning. In making his reply he distinguishes the two methods of reasoning—the analytic and the synthetic—explaining why by preference he makes use of the former as being the better suited to metaphysical questions. Metaphysics is not, he says, like geometry, in that its main difficulty is to grasp clearly and distinctly the first hypotheses: these may be really clearer than those of the geometer, but they conflict with our preconceptions, and there are those who are ever ready to deny them. Hence Descartes wrote his *Meditations*, not as problems to be propounded or theories to be laid down, but for those who wished really to meditate with him.

The Third Objections are those made by Hobbes, of which we have spoken. Two minds could hardly be more antipathetic than those of Hobbes and Descartes—the one representing the spirit of materialism and unbelief, the other being idealistic, and (however little this might at first appear) dogmatic; to Descartes Belief was above all other things essential. Hobbes, the sceptic, says, how do we know that we are not the victims of our fancy, listening to tales in which there is no truth? I think, but why should a thinking thing be more than what merely is corporeal? Descartes replies by pointing out that Thought is the action and the thing in which the faculty resides: he does not say it is not corporeal; thought cannot be without the thing that thinks, as an act cannot exist without a substance by which it is the act. But though we know the substance as the subject of certain acts of different kinds, such as those of a corporeal description, there are also acts known as intellectual, and we name the substance in which these reside a thing that thinks, or spirit.

When Hobbes accused him of scholasticism, Descartes, the idealist, points out that the "I" and thought are really one, and that there is nothing separate from thought. Hobbes argues that his reasoning may be but a concatenation of names brought together by the single word "is," and then goes on to say that Descartes must prove the "idea" of God rather than prove His existence from His idea. Descartes denies the first and explains his use of the word "idea" as meaning all immediately conceived by mind. If there is an "I" there must be the idea of God. Of course it was open to Hobbes to say he had no idea of God, and that Descartes was merely dealing with a name. He deprecates, too, the conception of a Being without either beginning or end, or of a creator when our only idea of creation is derived from what we have actually beheld. Descartes replies that none of our conceptions of God come from without: they do not resemble outside things, but are always present in our thoughts. The relations between Hobbes and Descartes are evidently strained throughout. Hobbes talks of Descartes' matter as "stale," and Descartes responds by denouncing some of Hobbes' objections as frivolous.

Arnauld, again, discusses the nature of the Human Mind and the possibility of knowing the self without also knowing the body. May I not, he asks, find myself in error as regards what I think and what I believe I clearly know, and may my essence not require that I shall be extended? If I exclude the conception of body in that of a thinking thing, possibly, he says, my idea of a being is not complete. Arnauld does not see how Descartes' views of spiritual existence should prove the immortality of the soul, nor why the lower animals should on his hypothesis be deemed soulless. And as regards his conception of God, he once more criticises Descartes' ideas. We cannot, he says, conceive God in His positive relation, owing to the imperfection of our minds, and we cannot speak of the efficient cause of His existence, but merely that He is God and infinite. In Arnauld's view, Descartes reasons in a circle when he

says that before knowing God we must have clear perceptions, and then maintains that we know what we know through knowing God. St Augustine, Arnauld considers, has spoken more worthily of this great idea. There were several points also in Descartes' newly expounded views which Arnauld thought might trouble the theologian. He considered that this might be so with his views of right and wrong as an intellectual discernment of truth rather than as a moral exercise. His clear and distinct Belief is good in certain regions, such as those of science and intelligence, but it does not, he considers, hold true of matters of faith, as Augustine himself points out. We must *believe* what we do not *know*. Then Descartes' view of the Eucharist, in which he distinguishes between the substance and its accidents, is open to criticism, and Arnauld utters a solemn warning against putting weapons into the hands of those who might fight against a faith founded by God Himself.

The Replies to these criticisms are written in Descartes' suavest manner as to an opponent whose opinion he regarded most highly. Though Descartes holds that the two sides, mind and matter, are related, he considers that mind can be distinctly and fully perceived as a complete thing without those attributes which are necessary to body. Nothing in our conception of spirit pertains to body, nor in that of body to spirit. Our clear conception of the one excludes the other, and this (amid some slight ambiguity of expression) seems the certain outcome of his arguments. To Arnauld's question of why the idea of soul in the brutes should be excluded, Descartes explains his view of the mechanism of their movements even where they appear most voluntary. Judging from Arnauld's future experimental work on animals, when he regarded their cries, as Malebranche did, without compassion, or as the "creaking of a machine," one would imagine that in the end he became fully committed to Cartesian views respecting the automatism of brutes.*

* *Port Royal by Ste Beuve*, vol. ii., p. 316.

Much of Arnauld's criticism on the duality of existence, and also in reference to the refinements of theology, is very reasonable, and Descartes has evident difficulty in refuting it. His dualistic system in particular involves him in problems which cannot be resolved but by force, and his efforts to preserve peace with the Church led him into subtleties often difficult to follow. He had in Arnauld a critic worthy of his metal, and one whose powers he was ever ready to recognise: the opponent next in order was of a different type. Gassendi's teaching represented a revival of the Epicurean point of view with its theory of molecules (which later on was developed further on sensuous lines), and for him Descartes had none of the respect which he considered due to certain other of his critics. Gassendi did not understand the fuss made about the nature of the soul and its distinction from the body, and he does not acknowledge that thought is to be placed in a plane superior to body. What, he asks in truly modern style, do we really know about ourselves or the nature of our minds: a thinking *thing* is but an evasive mode of expression. Implanted ideas such as that of God, were to him an impossibility, just as was that of His infinitude: we merely form our conceptions of God as we do those of angels, from our senses and from hearsay. And when we ask the meaning of evil and of error we must say that God is the author of a power that errs. Gassendi acknowledges that there is, of course, a God (perhaps he did not venture on an open avowal of his real view), but he denies that the conception of Him proves His existence; anyhow, the conception of God is not as evident as are the conceptions of geometry; therefore why should the first be essential to the second?

Descartes in reply once more explains his scheme of knowledge, boldly maintaining spirit to have the power of acting independently of the brain, thus forming acts of pure intellect. We may dream from our imagination, he says, but we must perceive our dreams by our mind or understanding. To him Gassendi's arguments to the contrary were merely cavilling and contradiction; the

idea of God could not possibly be derived simply from assertions made by others, else how did it originate at all? Gassendi however was not satisfied with this reply, and he writes yet another letter maintaining that all are not persuaded of the existence of God—a statement which Descartes thinks both absurd (since that existence is a fact which all acknowledge) and impious. The truths of mathematics were not by Gassendi conceived as absolutely certain, and Descartes considers such an acknowledgment to mean the closing of the gates of reason and the making of oneself no better than a beast.

In all these criticisms, which are far from being futile, as Descartes declared, we have the weak point of his system emphasised, viz., the externality of his views of knowledge. Descartes arrived by a sort of intuition at the first fact, that a beginning must be made with Thought: but he treated of thought, of soul, and of God, as though they were all outside things which must be proved by reasoning, or if that failed, by faith. While this was done, any materialist like Gassendi had a perfect right to step in and say, "I have not these sensations and convictions that you describe, why should I believe them?" And to this Descartes has really no satisfactory answer to give.

The sixth set of Objections were composed by various divines (who also regarded thought and existence as still unknown quantities, and who saw possibilities of our being moved corporeally), while the seventh were those of Père Bourdin, whom Descartes took as representing the Order of Jesuits, to which he belonged, and thus treated with more consideration than he deserved. The whole argument, designed to make Descartes' reasoning appear absurd, is too far-fetched and elaborate for us in these days to follow with any degree of interest.

This completes the seven Objections published in 1642 along with Descartes' Replies at the end of the second edition of the *Meditations*. There were other objections indeed, but these were not brought forward till later on. These seven are tolerably comprehensive, and often

Descartes has to evade the question, to escape from difficulties brought before him. But in the main points he stoutly held his ground, and allowed no passing critic to influence his position. He had reached, he believed, a firm foundation, and on it he must stand or fall.

CHAPTER VIII

THE UTRECHT CONTROVERSIES, 1641-1643

DESCARTES' antagonist, Voetius, had been in the year 1641 elevated to the dignity of Rector of the University of Utrecht, and had thus been given the power of doing much to injure the reputation of his rival. Regius informed him that he wished to publish the New Philosophy with the approbation of the university, and a little flattery obtained his consent to placing the name of Descartes at the head of the theses that were to propound it. The first public disputation on the subject took place in April 1641, when Regius was assisted by De Raey, a promising young student. Voetius soon regretted his permission on seeing how well Regius played his part, and a passing disturbance in the classroom gave him an excuse for trying to oust the latter from his class.

The dispute became a general one; Regius published his views, and versifiers and combatants of every sort took some part or other in the fray. His faithful follower, of course, informed Descartes of what was being done, not omitting to expatiate on the extent of the opposition which he was combating. He also enclosed a copy of his theses with the rector's comments appended, which Descartes did not find as objectionable as might have been expected, while he was somewhat critical of his too enthusiastic follower's rather immoderate statement of his views. A second set of theses made by Regius followed the first, and gave equal offence to the authorities of the university, and more

particularly to the rector. Voetius had strangely enough imagined that Mersenne was going to write a book in refutation of the Cartesian doctrines. Mersenne, who had indeed at one time been somewhat critical, after repeated letters from Voetius, finally replied to his inquiries as to why this was not forthcoming, that he himself had been quite convinced since reading the *Meditations* and "Replies," that great light on natural truths might be obtained through Descartes' writings. The careful Mersenne also remarked on the similarity which existed between his doctrines and those of St Augustine, and on their Christian character, "inspiring as they do the love of God"; while, at the same time, they were "not inconsistent with the doctrines of Plato or Aristotle if rightly understood."* This reply, sent under cover to Descartes, must have been a blow to Voetius, coming as it did from the cautious Mersenne, so well reputed for orthodoxy, although of a religion different from his own.† Despite similar discouragement from other quarters, he, however, took up the cudgels from the theological standpoint, and got the professors of medicine and mathematics to do so in their special regions. Regius had made use of some rather indiscreet expressions regarding the union of body and soul, which, being contrary to the language of the schools, were sufficient to brand their promulgator as a heretic; and, along with his colleagues in the theological faculty, Voetius forbade the students to attend his lectures, and issued a document condemnatory of opinions such as his, and also of the views of Kepler, and those who advocated any other system which might not harmonise with that of "Moses and the Holy Scriptures." This document he wished all the professoriate to be bound to sign; however Regius succeeded in getting the efforts of Voetius in some degree annulled by means of a certain burgomaster, an influential supporter of Cartesianism; and Regius himself (who seems to have been most astute),

* *Corr.*, vol. iii., p. 603.

† The letter was not written till December 1642. Voetius had written five letters previously, all of which are lost.

was able to assure the Members of the Faculty of his innocence. The theses of Voetius in an altered form were, however, duly disputed with great heat in December 1641, although from Baillet's account proceedings were somewhat marred by the fact that the president did not conduct the proceedings quite fairly. It was clear that the feeling against Regius was getting more and more bitter, and probably Regius' own conduct was far from conciliatory, for even his friend the burgomaster urged that some consideration and respect should be accorded to his opponents. Descartes, in his quiet home at Endegeest, was kept fully aware of what was taking place, both by Regius himself and a certain "Colonel Alphonse," probably Alphonse Pollot, who visited him there. This Alphonse had sympathised with Regius' views, but at the same time he also felt that Regius had not shown sufficient consideration for his opponents, and in this view Descartes so thoroughly agreed that he wrote a long letter of advice to his young and too ardent supporter.* The letter throws an interesting light on its writer's character and qualities: one is inclined to think that the teaching of La Flèche had borne fruit of a kind we should not have expected. For Descartes has no hesitation in urging what we cannot but allow to have been a somewhat equivocal course of conduct. He asks why Regius so publicly rejected the old scholastic terms. Did he not recollect how, without rejecting them, he himself had shown how they might be dispensed with? "Without uselessly troubling," he says, "to condemn the past, find the best way to make use of the future." His advice might be diplomatic, but it does not strike one as quite straightforward. Certain statements in his reply to Voetius Descartes considered should be withdrawn, and others modified—in fact, the whole should be re-written. Regius found himself in very serious difficulty, and was astonished to find his work regarded as anything but a masterpiece. Descartes went so far as to draw up what he considered a suitable answer for him to make, and this reply is full

* *Corr.*, vol. iii., p. 491.

of almost fulsome compliments to Voetius; it tries to emphasise any possible accordance with his views; it insists on every possible title being given him, "the more distinguished the better"; and in every way endeavours to ingratiate the writer with his correspondent. The Reply was finally published in February 1642, but, as might be expected, Voetius was not propitiated by its compliments to him: at once he endeavoured to stifle it as having been published without the order of a magistrate and printed by a Catholic: he demanded its suppression by the university, whose peace it was calculated to disturb, as also the denunciation of the pernicious doctrines which it taught. Certain copies were seized on by the magistrates, but the remainder became all the more valuable, greatly to the annoyance of Voetius. The latter called meetings of professors together, and finally got a document signed by a majority of these, begging the Council of the City to proscribe the new doctrine as libellous to the rector, and as likely to prevent young men from attending his instruction.* The war was now carried into the municipality, which was called upon to settle the dispute; it gave its decree on March 15, to the effect that Regius was forbidden to teach anything excepting medicine, while the professors were to decide as to the merits of the book. Two days after, and just upon demitting office, the rector gave judgment at a meeting of Senate (in his opponents' belief illegally), supported only by eight of the professors. Descartes counselled his indignant disciple to conform to the judgment of the magistrates to teach medicine alone, and by his silence on other topics to arouse the greater curiosity amongst his students. The interest of the quarrel had so far been in Descartes' attitude of extreme caution and reserve. As we shall see, he himself soon became involved in the long and tedious dispute.

The Meditations were being much discussed in the learned society, over which Mersenne exercised so great an influence now their drift was becoming better under-

* *Corr.*, vol. iii., p. 528.

stood; and Descartes' letters give constant evidence of how much this was the case. He seemed to have felt that he was remiss in exiling himself from his native land, and he takes pains to assert his faithfulness to the religion of his fathers, and to explain that he is not alone in taking refuge in a country of a different faith, evidently making reference to Queen Henrietta Maria of England, who had just arrived in Holland.* Descartes, indeed, was continually defending himself against accusations on one side or the other. He finds himself obliged to explain that he is not touched by the Pelagian heresy: one may, he says, learn through one's reason alone that God exists, but this natural knowledge is something distinct from the Faith which proceeds from Grace, and is not to be confounded with it. Huygens he endeavours to comfort for the loss of a brother by saying (what does not wholly coincide with some other statements), that he has every belief that souls live after death, and that we shall meet again and have memory of what is past.† But he characteristically remarks—and this remark shows his true attitude of mind—that however much religion may teach men, he himself feels, and he believes he does so in common with many others, that what is merely taught us, and what we accept by Faith, is not nearly so deeply affecting to us as that of which we are convinced by our natural reason as well.

The Jesuits, of course, were much divided as to the merits of the new philosophy, more so than the Fathers of the Oratory who were on the whole favourably disposed, and in some cases even complimentary. But it was the Jesuits whom Descartes was so anxious to conciliate, and for whose good opinion he really cared. He declares to Mersenne that he will not write in opposition to them, and he expressed himself as most desirous of their approbation, more especially in reference to his views regarding the Sacraments. Père Bourdin was a critic amongst the Jesuits, whom he did not regard as quite fair in his strictures, since he believed him to have collected his "Objections" from others, a

* *Corr.*, vol. iii., p. 543. † *Ibid.*, vol. iii., p. 580.

course of conduct not then approved; and altogether his criticisms were taken in ill part. To Père Dinet, however, he writes a long account of all his troubles, not forgetting every detail of Voetius' iniquities.* But his efforts to separate his friends amongst the Jesuits from those who were unfriendly was in vain, for Dinet, instead of replying, simply succeeded in quieting Bourdin with the view of procuring peace: shortly afterwards he was made Confessor to the King.

Descartes had, Baillet tells us, many applications for the publication of his works in Holland, and seeing that the book would probably be issued in Holland without his consent, he deemed it best to bring out a new and corrected edition there, stipulating only that the publishers should not send copies to France. Soly, of Paris, had apparently not given him great satisfaction, owing to his dilatoriness, and this was also an opportunity for making certain changes in the text.

As we have said, Descartes was now settled in his country home at Endegeest, where he led to all appearances a much more social life than he had done heretofore. One of the advantages of his position was that it was near the Hague, being separated from it only by a road described as the most beautiful imaginable, passing as it did through meadows and pleasure grounds —we might in these days add through fields of gaily coloured tulips. The town of the Hague, besides its natural advantages, was further attractive through the residence in it of no less than three courts. There was, of course, the military court of the Prince of Orange, made picturesque by uniforms and soldierly accoutrement; then that of the States-General, which was purely civil in its character, formed as it was of deputies and burgomasters attired in sober black, and with the square-cut beard we know so well from Rembrandt's pictures. Then came the court which became so interesting to Descartes, the court of the exiled Bohemian queen, widow of the Elector Palatine, who reigned like a divinity with her four daughters at her side. All these last were attractive in

* Baillet, vol. ii., p. 164.

their way, but the eldest became a close friend of the philosopher, and of her we shall speak later on. Regius was naturally a frequent visitor to Endegeest, and he was permitted to bring his wife and daughter, to both of whom Descartes appears to have been attached. He was the better able to entertain in his country home, inasmuch as he could drive his visitors in the carriage that he kept there, and some friends, like Picot, seem indeed, to have remained with him for a considerable time.* This was the yaer in which the Duke of Luynes made for his own diversion a translation of the *Meditations* into French, which Descartes thought so excellent that he had it published some years later on. Clerselier, to complete matters, had the "Objections" also published with their "Replies"; this, like the other, was subject to Descartes' revision and correction. On this occasion, as on others (such as when Picot translated the *Principles* later on), the author made certain alterations and modifications which render the French version more valuable than the Latin.

Besides these mentioned, Baillet tells us of quite a number of men of learning who visited the philosopher, now become famous, in his charming home, but most of

* A story is related by Baillet about a certain mathematician and astronomer in the north of Holland called Dirck or Theodore Rembrantsz, one of Descartes' many disciples of humble birth. This peasant shoemaker, who, in the midst of his struggle for his daily bread, had succeeded in reaching a considerable degree of learning, became inspired with a desire to visit the great philosopher, especially as he had heard him to be easy of access to all. But when he reached his home the servants sent him off, thinking him merely an importunate beggar. Three months later the man returned in similar attire and received like treatment, in spite of his air of resolution. Descartes was, however, informed of the fact that a beggar, making the excuse that he wished to speak on learned subjects, had called, and sent him alms. This last Rembrantsz refused, saying his time had not yet come, but he would call yet once again. Descartes, on hearing this, regretted not having seen him, and asked that he should be detained did he come again. The third time all went well; Descartes at once recognised his merit, offered to pay his expenses, explained to him his difficulties, and did not disdain to count him amongst his friends. Rembrantsz subsequently did much astronomical work, and wrote a book founded on Descartes' vortex theory.

these are only names to us, though there were among them, of course, many representatives of the Order to which Descartes' sympathies seemed always to go out in so particular a degree. One would imagine that at this time the minds of all men of science would be stirred by the passing away in pain and weariness of him to whom the world has owed a debt of gratitude never to be repaid. Galileo died near Florence in 1642, but of this fact Descartes tells us nothing.

As to the great Cartesian controversy at Utrecht, a new figure soon appeared in it in the person of a certain Martin Schookius (to give the name in Latin form), a student of Voetius, now become professor in the University of Gröningen in Friesland. This Schookius was made a sort of stalking-horse for his former master, and allowed to carry on a controversy in which Voetius was really the assailant, though Descartes himself was not at first aware that this was so. Thus Voetius and his son at Utrecht, and Schookius in Friesland, kept up a constant battery against one who above all else sought rest and quiet. It became a matter of common talk, that the chair held by Regius could not be retained, and that he would fall a martyr to the cause, especially as he refused to exercise the caution which Descartes enjoined. Voetius appears to have taken out some sort of an injunction against the publication of any writings contrary to the theses of the university. But he was not able to bring the accusation against Regius home to him, especially as the book (nominally by Schookius but really under Voetius' supervision), which was being published at Utrecht, was making but slow progress in the press, owing to the occupation of Voetius with the matter of the confraternity of the Virgin at Bois-le-duc, after the reduction of the town by Frederick Henry. There was here a strange association for political purposes between the two great religions, which greatly shocked the logical Voetius, and a bitter religious and political controversy took place on the subject, in which the Protestant magistrates of Bois-le-duc were vigorously attacked

for associating themselves with a Catholic order for political ends. Descartes was naturally only a spectator of this quarrel in the first instance, but, as might be imagined, though Baillet says that he allowed no personal prejudices to influence him, and regarded the question only as an "honest heathen," he formed the lowest opinion of the methods and motives of Voetius in the matter. The alliance against a common foe made him strike up an acquaintanceship with Desmarets, who acted as advocate of the party of the town of Bois-le-duc, and who was a Calvinist theologian of the day. The two were in the course of the unedifying controversy with Voetius, likened by his son to the characters of Herod and Pilate.

The joint attack on the Cartesian philosophy appeared early in 1643, and it was a very thorough condemnation of the doctrines of Regius (as representing Descartes' views), and those of the philosopher himself. Very shortly after its appearance Descartes' reply was published by Elzevir of Amsterdam in the form of a letter in the Latin language addressed to Voetius; and it dealt with the Bois-le-duc controversy as well as with what more immediately concerned the author. Even Baillet (while regretting that owing to the shortness of the work certain points had not been dealt with), allows that the letter was not particularly chaste in style, although it would certainly be comprehended by every class of readers. Hard words were the order of the day, specially in controversy in which theological and philosophical questions entered, and Voetius had for a long time acted as a continual irritant both by his writings and through his actions.

Copies of the writing were sent to the magistrates of Utrecht, who, to Descartes' surprise, took the side of the man who they considered was upholding the cause of their religion, and some weeks after their receiving the work Descartes obtained information of the issue of an edict of some sort in reference to his works, calling upon him by public bell to verify his statements. How the magistrates of Utrecht could imagine themselves to have

jurisdiction over a stranger such as he was, he could not understand. It seemed to him as though the quiet he made such elaborate plans to secure were to be unwarrantably interfered with. He had recently moved from Endegeest to North Holland, where he was settled in a comfortable house hired for a year at Egmond op de Hoef, and this had been made known to the magistrates, so that there seemed no reason for their public mode of advertising their demands in his regard. As usual, he at once proceeded to write and publish his reply. In it he demanded whether Voetius were not really responsible for Schookius' book, absolved himself, however, from any desire to combat Voetius, and protested against the magistrates' assumption that they held any jurisdiction over him; he also stated that he was ready to bring forward in writing any further proofs that were required of what he had written. After this Voetius bestirred himself even more than before, and whether or not he took the unfair methods ascribed to him, he procured witnesses to prove himself in the right. In September 1643, a commission appointed to investigate the charges, finally gave sentence against Descartes, declaring his letters to Dinet and Voetius defamatory, and shortly afterwards he was cited to appear in person as though he were a criminal. It appeared, too, that the sentence given in Utrecht would legally hold good in the province of Holland in which he was residing.* At first Descartes hardly realised that the matter could be serious, but when he did so he proceeded to make further inquiry at the Hague, and here his worst fears were confirmed. He made application to the French ambassador for assistance, and he referred the matter to the Prince of Orange, who caused a letter to be written to the Estates of the Province of Utrecht, in order that they might bring influence to bear upon the city magistrates. Things had, however, gone too far to be easily departed from: the publication of the edict, it is said by Baillet, had been made under conditions of the greatest secrecy, and he states that it was hoped that sentence of fine and

* Baillet, vol. ii., p. 192 *seq.*

banishment would be given in default, since Descartes might not hear of the citation till it was too late. Then an official account of the whole proceedings would be published, after the books had been publicly burned in a triumphant bonfire.

The personal matter between Voetius, his pupil Schookius, and Descartes, is of little account. Descartes took the plan of citing Schookius to appear at Gröningen, even although he appears at the time to have held the place of rector of the university there, believing that the true responsibility for the publication would in this way be revealed, and the matter cleared up. After all Descartes had not fared so badly as might have been anticipated. The action that had been taken by the University of Utrecht caused general indignation, and he had by this time many friends, and these friends rallied round him, and spoke in indignation of his treatment. As usual in such controversies, the results were not very great, nor did they redound to the credit of anyone participating in them. It seems nowadays inconceivable that anyone should take the trouble to write nearly two hundred pages of invective, however great the provocation might have been, and no doubt in this case it was great. Voetius had accused Descartes of ignorance and of seeking to make use of another to introduce his folly into a newly-instituted university. He compared him to Vanini, whose name had, so shortly after his being burned, a sinister association, and called him not only a liar, and the introducer of the venom of atheism into the minds of others, but also insinuated that he had bastard sons, an accusation which he denied with heat.

Of course, in all these proceedings the worst possible motives were attributed to Voetius, who apparently exerted himself so forcibly to stir up strife and enmity. We must recollect, however, that Descartes (with what lack of reason we all are now aware) was accused of being that dread ogre in Protestant Christendom, a Jesuit in disguise, and it was honestly believed that he had come to that country which had bought its religious liberty so dearly, to re-implant the creed to combat which the

people had so recently given their life-blood. That Gisbert Voet was as black as Descartes painted him, of course, is not to be believed. He has always been regarded as an influential and important personality in the Reformed Netherland Church, at a time when disputes between Protestants and Catholics, Orthodox Calvinists, and Arminians, were constantly proceeding, and where war had also to be waged against the separatists, such as Labadie, as well as with the rationalists.* Voetius is said to have carried on a constant war against what he considered the errors of the day—dancing (unless indeed the private dancing of a husband with his wife), play-going, Sabbath desecration, etc. Teachers of dancing he considered should be banished from the land, and holders of dances prosecuted; smoking, feasting, and luxurious conduct generally were condemned, and were to be replaced by discussions in philosophy and history. One can imagine that such teaching did not appeal to Descartes, and still less to the gay court at the Hague, which he frequented. Anna Maria Schurmann was, however, for the time being, under the influence of the strong logical Calvinistic teaching, and she became so ardent a disciple of Voetius, that in deference to her, it is said, women were under certain circumstances permitted to hold meetings.

It is satisfactory to know that, as we shall see later on, the quarrel ended as all such controversies should end, in toleration. "There is nothing in life sweeter than peace," says Descartes two years later; "hatred can be useful to none; I should not refuse the friendship even of Voetius, if I believed it to be offered in good faith."†

Early in this year, 1643, the Abbé Picot, who was one of Descartes' rather numerous visitors, had written to him about his proposal to find a home and property in his native land Touraine. After all these years Descartes still had a strong affection for the rich country of his youth. At the same time he adds a sentiment

* *Geschichte des Pietismus von Albrecht Ritschl*, vol. i., p. 101 *seq.*

† Baillet, vol. ii., p. 261.

significant of the changes he was proposing for himself, for he would, he says, on the whole, prefer a larger property on a less fertile soil, where he would be less disturbed by the importunities of neighbours. Descartes was, in fact, as we have seen, making another change in his manner of life, and leaving his attractive residence at Endegeest for the house he had hired at Egmond op de Hoef in North Holland, where he proposed to stay a year, and then pay a visit to France to settle his affairs with his elder brother. Why the beautiful Endegeest should have been deserted, it is difficult to say. The reason may have been that the house near Leiden was too much in the centre of a populous country. Visitors came from the university near, from the Hague not far off, and from abroad, and between the curiosity of strangers and the disputes of scholars, peace and quietude were not to be attained. Until the "Principles," now in process of composition, were published, Descartes wished no visitors to disturb him: from one of these, De Ville-Bressieux, he was unable to get free, and he was finally followed by him to Egmond.*

As usual, Descartes' real life and interests are to be found in the constant correspondence with his many friends. Mersenne, in whose judgment he expresses absolute confidence (he reproaches him for assuming that Huygens' opinion would on any subject be more highly esteemed than his own), did his friend a good service, as we have seen, in writing in his defence. This letter, Descartes, who had a certain amount of worldly wisdom, proposed to forward through Huygens, who would make its contents public. Mersenne's letters were quoted to the magistrates of Utrecht, and possibly the writer, who loved dispute, took some pleasure in thus fanning the flame of controversy.† The period was one at which many points of interest were occupying the

* Egmond op de Hoef (or Egmond on the Farmstead), a small village and the ancient seat of the Counts of Egmont, stands in a marshy bit of meadow between the sand-dunes which fringe the coast of Holland and the rich pasture-land of the interior. Descartes' house no longer exists.

† *Corr.*, vol. iii., p. 604.

minds of the two constant friends. One of these was that often recurring question as to whether temperature influences weight. Then the infinite rarefaction of air by "angelic" and supernatural means is considered, and the nature of the "subtile matter" contained in it. With Huygens, again, Descartes discusses at much length the principles governing the flow of liquids, apparently arriving independently at some of the same conclusions as Torricelli. But one remarkable and interesting fact in these scientific discussions is the much more appreciative tone which is gradually adopted in regard to Galileo's work. Later on he makes inquiries concerning the quality of Galileo's telescope, and how by its means Saturn's satellites may be seen. The magnet was also occupying Descartes' attention, and to Huygens he enunciates his theory of its operation, describing the subtile and imperceptible matter which, he holds, emerges continually from the earth, passing from north to south.

Occasionally in his letters Descartes follows a more metaphysical mode of thought, and disputes with Mersenne the possible existence of "real qualities" in nature. But in all his discussions the same principle is ever kept in view, viz., that the physical aspect of things is not to be taken by itself, or as something more real than intelligence or mind. So far Descartes saw most clearly; the reconciliation was perhaps more difficult.

Letters were strangely long in reaching him in his new abode. Though Egmond op de Hoef seemed comparatively near, eight days were occupied in reaching it from Leiden, and for this reason Amsterdam was given as his address under care of the famous Elzevir. As regards his correspondence, a very natural little touch is given in what he writes in reference to a copy of *Cicero*, which he had been commissioned to obtain for Hardy. The book was sent, and the recipient wished to pay the cost, twelve and a half francs. This sum, Descartes declared, was beneath his notice; but if it would enable Hardy to employ him once more in carrying out his wishes, he said he would be glad if the money were

given to Mersenne's porter to meet the postage of his letters, which could not have been small.

In 1643 the great Richelieu passed away, but all the allusion made to the fact is a half-humorous remark that his many millions might have been usefully employed in the furtherance of discoveries in science: how much more useful might these discoveries have proved, he says, than the victories of war! But by this time a fresh interest had come into Descartes' life—one which was to prove of momentous influence to him—and with the subject of it we shall deal more fully in a succeeding chapter.

CHAPTER IX

THE PRINCESS ELISABETH OF PALATINE, AND HER CORRESPONDENCE

Even in the long romance of the Stuart kings, there are few histories more interesting and touching than that of the noble Princess, who was the daughter of the "Winter-König," Frederick of Bohemia, and his wife Elisabeth, eldest daughter of James the First of England. Frederick, Prince Palatine, claimed to be the head of the Protestant interest in Germany, and his marriage with an English princess, and one who, owing to her brother Henry's death and the frail health of the second brother Charles, was not far removed from the English crown, seemed to render much more favourable his prospect of succeeding in the maintenance of these claims. At their early home at Heidelberg their three elder children were born—Frederick Henry (afterwards drowned), Charles Louis, and, on 27th November 1618, Elisabeth, afterwards the friend and correspondent of René Descartes. The happy life of the two young people (the two elder children were born before either parent had reached the age of eighteen years) was, however, soon interrupted by the offer to Frederick of the Bohemian throne. Long deliberations followed as to whether or not it ought to be accepted, but the entreaties of the future queen were too successful, and the step was taken which was to bring misery to all concerned. Charles Louis and the infant Elisabeth were left at Heidelberg under their grandmother's protection, while the elder boy accompanied his parents,



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Elisabeth, Princess Palatine
from a painting by Gerard Honthorst

and a triumphal progress was made to Prague, the capital of Bohemia. The joys of kingship, however, proved but short; in November another prince was born, destined to be famous in English history as Rupert of the Civil Wars, and soon afterwards the imperial house of Austria prepared to strike the impending blow. Forces were collected from every part of the empire: the fatal battle was fought at Prague, and Frederick, with wife and son, was forced to fly. Strangely enough, with the victorious army that was pouring into the deserted city was the young Descartes, who was, as we have seen, serving under the banner of the enemies of those whose daughter was afterwards to be his most respected friend.

The lives of Frederick and his queen were destined to be full of peril and unrest. The latter, impetuous though her nature was, never lost her courage; she came under the protection of the Elector of Brandenburg, since no hope of succour came from England, and finally with her husband (for the two were constant in their affection through good report and ill), gladly accepted the Prince Maurice's invitation to the Hague. The hospitality of the prince was great, for not only did he offer a winter residence in the town, but also a summer seat at Breda for the young queen's use. The town house (which belonged to Cornelius Van der Myle, then in banishment) was even furnished by the States at their own expense. The queen's high spirits never failed her in all her many troubles and anxieties: though her husband suffered constantly from depression. Money was more than scarce, plate and jewels had to be pawned, and children continued to be born to parents who had already many mouths to fill; but nothing seemed to daunt the "Queen of Hearts," as her admirers loved to call her.*

Meantime, the young Princess Elisabeth and her brother Charles Louis, were being nurtured by their grandmother: the town of Heidelberg, which had been

* Miss Everett Green, in the *Princesses of England*, gives an interesting account of the Queen of Bohemia and her family.

their parents' happy home, and since then the residence of the Dowager Electress, fell under the attack of Tilly, and the Electress and her little charges wandered amongst the friendly princes of Germany, and finally took up their abode in Prussia. Here it was that Elisabeth and her brother Maurice remained till they were sent to meet the rest of the family in Holland, and it was on their parents joining them at Leiden, that there was painted by Pallenbergh the picture of the family now in the Palace of Hampton Court. The education afforded to the children must have been remarkable for its excellence, though their natural gifts were also quite unusual; of the younger members of the family Prince Rupert was endowed with scientific abilities of a marked description, and the Princess Louise Hollandina with a real taste for art; while the elder children were equally distinguished. Soon after these last joined their parents at the Hague, Frederick Henry, the eldest and most promising of the sons, was drowned through an accident at sea, to the great grief and sorrow of his parents.

It was in 1632, when Elisabeth was fourteen years of age, and not long after the birth of her mother's thirteenth child, that her father died of plague. This event happened after the victory at Lützen (so dearly bought by Gustavus Adolphus' death) had just been won, and when Frederick's efforts were apparently about to be crowned with success. Misfortune ever dogged the steps of this unhappy family.

The young princess, however, had much to compensate for the troublous times in which her youth was spent. She had been fortunate in her early guardianship, so far as upbringing was concerned. Though her features were well formed, she was not gifted in the same degree as many of her race with striking personal beauty. Of this we may judge by the pictures that remain of her, as well as by contemporary evidence. She was unskilled in music, and her sedentary pursuits, her deep reading and reflection, were not such as to appeal to a mother whose interests were in the chase and in the small gaieties of her impecunious little court,

with which she beguiled the tedious hours of banishment. The young girl grew up apart from the influence of her mother, full of courage and devotion, but of an impetuous spirit which did not conquer circumstances, although prepared at all times to war against them : she had shared in her brothers' studies, she corresponded with them when they left to study elsewhere, and her strong and forcible intellect was gradually developing its powers as time went on. The one great bond between the mother and her daughter was their firm attachment to the Protestant, or rather Calvinistic cause, an attachment not shared by many of their family, who were content to barter their faith for personal advantage. After their father's death, the three elder children were constantly with their mother, and the young Princess Elisabeth had various suitors for her hand. The first of these, the Comte de Soissons, was set aside on religious grounds by the King of France. The courtship which promised to be the most successful was that of the King of Poland—a suit warmly welcomed by the House of Palatine, since Ladislas was supposed to have a claim upon the crown of Sweden. The Polish Diet would not, however, hear of a possible alliance with a heretic, and an attempt made to induce Elisabeth to join the Romish Church was emphatically refused with the full approval of her mother. What Elisabeth's real sentiments were while these negotiations, which were long and tedious, were taking place, it is not given to us to know; but that her feelings had been touched we can hardly doubt, even without the assurance of Miss Benger, the gossipy writer of memoirs of the court, who states that when the affair was past, Elisabeth though only eighteen years of age, had decided to think no more of marriage, but dedicate her life to letters and philosophy. Some other names connected themselves with hers, but religion or some other reason intervened. The impecunious princesses, indeed, were not regarded as eligible *parties*. Frederick William of Brandenburg, Elisabeth's cousin, became a frequent visitor at the court, and possible suitor for the hand of her younger sister Louise Hol-

landina. He married otherwise on grounds of policy, but for whatever reason, he was never forgotten by Elisabeth herself; and her brother Charles Louis heard that she had named him in her will.*

The life of the Hague was full of amusement to the young princes and princesses, in spite of all its sadness. The queen's indomitable spirits manifested themselves in every action. There were merry water parties in fashion among the ladies of the court, who sometimes disguised themselves as bourgeoises; and in these, at least if we are to believe the reminiscences of Sorbière, Elisabeth took part.† Fêtes were arranged, lists erected for tilting at the ring, balls and suppers held, while at Rhenen hunting was the order of the day. One could well understand that the young Elisabeth's tastes would not accord altogether with her mother's, especially as the influence of her grandmother had probably made the Calvinism of the time a very real factor in her life. What coolness did come about between the queen and the young princess probably owed its origin to the interference of a Mrs Crofts, a woman who had some post in connection with the court, and whom Charles Louis and Rupert cordially disliked.‡ Princess Elisabeth had inherited in some ways an unfortunate disposition; along with the pride of the Stuart race—a pride which was in no member of that unhappy family more apparent than in the Bohemian queen—she had also the disposition to melancholy which so often overpowered her father. While she was with her grandmother in Eastern Prussia as a child, silent meditations came to her as naturally as did action to her mother; but in addition to inherited powers and capabilities, she was endowed with a sensibility which made her feel most keenly what with others might soon have been forgotten. Thus all the family sorrows which her mother even was able to cast off, had on her the effect of utterly casting down her spirits, and even affecting her naturally good health. She required all the solace philosophy could

* *Descartes et la Princesse Palatine*, by Foucher de Careil, p. 84.

† Sorberiana, p. 102. ‡ Bromley, *Royal Letters*, p. 88.

give her to throw off the attacks of melancholia with which she was threatened. In this she was an exact antithesis to her gay young sister Louise, who was full of fun and humour, such as sometimes directed itself against her sedater sister. The scandal caused by Louise's elopement under somewhat suspicious circumstances was yet another grief to Elisabeth, as also was her sister's conversion to the Catholic faith: Louise ended her days, indeed, as the not too austere abbess of the Convent of Maubuisson in France. Elisabeth was known by her family as "La Grecque," and her sister Sophia describes her as with "black hair, a dazzling complexion, brown, sparkling eyes, a well-shaped forehead, beautiful cherry lips, and a sharp aquiline nose."

It was after the year 1640, perhaps as late as 1642, when Elisabeth was about twenty-four years of age, and while Descartes was living at Endegeest, that his introduction to his future correspondent took place, through the mediation of the Marquis de Dhona, one of two brothers with whom he had an acquaintance. There were, of course, several of Descartes' friends (amongst whom was Huygens) residing at the Hague, with whom the Bohemian queen had some acquaintance. Her chaplain, Samson Jonson, was also interested in Cartesianism: he was an Englishman who was supposed to have liberal views and a tendency to Arminianism, which brought him into trouble with the ultra-Calvinistic section of the Church.* Miss Benger tells us that Descartes was not sorry to make his way into the great world (though that hardly consisted with his actions), and that he was received with politeness by the queen and welcomed as a friend and master by Elisabeth, who was enthusiastic in her philosophic studies. The first visit to the court was followed by many others. Sorbière gives additional touches to the picture of the learned princess who would not occupy herself simply with the old scholastic questions, but rejoiced in making experiments for herself, and acquiring clear knowledge of the truth; "her beauty," he adds, as in duty bound, "was

* *Descartes et la Princesse Palatine*, by Foucher de Careil, p. 16.

truly that of a heroine." Already Elisabeth had come into relation with the celebrated Anna Maria Schurmann, the "glory of the University of Utrecht" and the pride of Descartes' foe, the Calvinistic Voetius. The learned lady would naturally be looked up to by the young girl, who viewed her in the light of all her triumphs, the admired of Balzac, Constantin Huygens, and the great men of the day. The two, who were destined to come together long years afterwards in the convent of Hervorden, at this time served in different camps. Foucher de Careil, in his little book upon Elisabeth, quotes from a letter addressed by Mlle. de Schurmann to her friend in 1639, in which she expresses the pleasure she has in hearing from the princess, and writes to her in a strain which might satisfy the ear of the most erudite.* The next letter is dated five years later, in 1644, and is devoted to the praises of scholasticism : this would not be very acceptable to Elisabeth, a student of Cartesianism ; and, indeed, it is evidently designed to warn her against the doctrine. The warning was none too soon, for this was the year in which the *Principles* were dedicated to that same princess, as one who understood what was contained in his writings more thoroughly than any one else whom Descartes had encountered.

On Descartes' leaving his home at Endegeest for Egmond near Alkmaar, in May 1643, his correspondence with his distinguished pupil began ; and we are fortunate, through the researches of Foucher de Careil, in having Elisabeth's replies, formerly supposed to have been lost or burnt.† It is a correspondence of a deeply interesting nature, and throws much light upon the characters of the two participators in it. The princess at once expresses her delight in knowing that so distinguished a philosopher desired to communicate with one "as ignorant as herself," and encouraged thus, she ventured to put her special difficulty before him ; this difficulty proved to be the very intelligible one that she failed to

* *Descartes et la Princesse Palatine*, p. 10.

† *Descartes, la Princesse Elisabeth, et la Reine Christine*, par A. Foucher de Careil, 1879.

comprehend in what way the thinking soul could possibly influence the body which is not thinking, so that it should be constrained to perform the actions that are desired. She wanted, in fact, a better definition of thought, or substance as separate from thought, and showed by what she writes that she had given careful study to the system she ventured thus to criticise. "Knowing that in you I have found the best physician for my soul," she says, "I so freely put before you my feeble criticisms, trusting that you will observe the oath of Hippocrates in their regard." Her wish in this respect we have every reason for supposing to have been faithfully carried out by Descartes.

Descartes was only too glad to have an opportunity of carrying on so interesting a correspondence, and his reply is in genuine courtier style: he speaks of his correspondent's conversation as "more than human, proceeding as it does from a body like that which painters are accustomed to give to angels": his ravishment was such as "might be felt by those newly entering heaven from earth." Now that he reads her writings he "is less dazzled, but has even more admiration, seeing that they not only seem, at first glance, ingenious, but prove themselves all the more judicious and solid, the more they are examined." Her question, indeed, was a fair one, as Descartes was ready to acknowledge when his compliments were over, and, to meet her difficulty, he described to her first his notion of body as extended and endowed with figure and with motion, and then that of soul, with its attribute of thought, in which are comprised the perceptions of the understanding and the inclinations of the will, explaining that for the soul and body taken together, we must have just the notion of their union. His answer, as we can understand, did not wholly satisfy the princess. She still could not comprehend how we are to conceive of the immaterial soul influencing the body; we do not understand, she says, what the action of weight (instanced by Descartes as attached to body as thought might also be) really is, and the conception of it cannot help us in conceiving

of another action operating between soul and body. For her own part, she declared she would find it easier to conceive of soul as that which is extended, than to conceive of body being moved by an immaterial substance. As to the praises so liberally bestowed, Elisabeth had sufficient knowledge of human nature to discount that which was, in her view, given as an encouragement to one situated as she was, in a position where she was constrained to hear much that was far removed from truth. From her own account, the life she had to live made it difficult for her to set aside time sufficient for acquiring a habit of meditation according to her correspondent's rules. If that were so, however, she had clearly used her little leisure well, for her arguments are stated with no small amount of skill.

This serious correspondence was carried on for many years, though an interval took place in it, while Descartes was occupied with the Voetius controversy. After that he resumed the discussion of certain questions of mathematics which had been occupying the princess's thoughts; Elisabeth was very grateful for Descartes' help in this particular region which "taught her more than she would have learned in six months from her master," and sent him further problems to solve; while he on his part was, of course, delighted with his disciple's work (which appears to have shown real understanding), and marvelled that, contrary to the usual rule, one who has the power of grasping metaphysical questions can comprehend mathematical problems as well, more especially as he had feared for her the absence of that quality, of patience so often lacking, as he naïvely puts it, to the "best minds and those of exalted position."

In August of 1644 the Princess writes in acknowledgment of the honour conferred upon her in Descartes' dedication of the "Principles." We cannot wonder that she was delighted by the public acknowledgment of the great philosopher's regard, expressed as it was in terms of almost fulsome flattery. What must have been the

solace to a young woman condemned by her religion and her poverty to a life of solitude, and estranged from her only surviving parent by an inherent difference of temperament, to have the support and admiration of one who had made himself a name throughout all civilised Europe for everything she esteemed most highly. It seemed as though at last she had found a tower of strength to rest on. The friendship was one of that sort which, whether or not it might under other circumstances have developed into something stronger, always remained true to the character it originally bore: whether such friendships are common or rare, they carry with them when they do occur a mutual strengthening and support which have a value all their own. It was good for Descartes in his life of solitude and self-immersion to have someone requiring his help to think of and support, especially someone for whom he had a real as well as a mere courtier's respect, and the good accruing on the other side is equally incontestable.

It was not long, however, before Descartes was shocked to hear of Elisabeth's ill-health. He was now settled at home again in his quiet quarters at Egmond, and he would have made the journey to the Hague at once, but that later accounts had been somewhat reassuring. True, however, to his vaunted reputation for skill in medical knowledge, he proceeds to diagnose the case. Elisabeth was suffering from a feverish attack due, he believed, to the sad fortunes of her race. "Vulgar souls," he tells her, "let their passions go, and are happy or unhappy as events are pleasing or displeasing to them," but with others, whose passions may be as great or greater, but who "let reason remain their mistress, their afflictions even serve to contribute to their perfect happiness."* They think, *i.e.*, so little of what Fortune may in this life bring, in reference to Eternity, that it is to them like the acting of a drama which pleases us, whether it be tragedy or comedy. The princess was grateful to her distinguished friend for his much esteemed advice, and was glad that he had

* *Corr.*, vol. iv., p. 202.

not attempted the journey to the Hague to see her, since Pollot had told her, what he himself had written, that, though not ill, he felt in need of rest and quiet. But she rather sadly adds that she is suffering from the weakness of her sex, which prevents her from throwing off the afflictions of the mind. The slow fever and dry cough should, the doctors told her, be treated by a month's visit to Spa to drink the waters, and as to this she asks her friend's advice. But, she says, did her correspondent know the reasons she had for sorrow, he would only marvel that her frail body had so long withstood the strain; no wonder she had found a difficulty in turning her mind to the speculation she loved so well. She had been reading at the time Sir Kenelm Digby's writings, which interested, but neither convinced nor satisfied her; the faithful clergyman, Samson Jonson, had promised to translate and send certain chapters for Descartes' criticism. It is rather touching to read the princess's expressed wish that this sad letter should be at once destroyed, since, as she observed, she had broken one of her master's maxims, which was to write nothing capable of misinterpretation by the uncharitable reader. Descartes may have obeyed this request, but if he burned the letters he took the not quite fair precaution of having copies of them made. Otherwise we should not have the interesting collection not long since discovered, and now at last made public.

The sympathy given the young princess, indeed, was true, associated though it was with quasi-scientific explanations of the causes of a trouble Elisabeth herself could diagnose so well. It must have seemed cold comfort to tell her, for instance, that she must think of joyous matters alone, so that her blood might regain its normal character; the waters of Spa were thought likely to be beneficial only if serious reflections were avoided. But the writer's account of his own birth of a consumptive mother who survived the event a few days only, and from whom a dry cough and pale complexion had been inherited, is interesting enough.* The doctors

* *Corr.*, vol. iv., p. 221.

had condemned him to an early grave, he says, but the delicacy had been overcome largely, he declared, from his deliberate efforts to look at the pleasant side of things and allow his happiness to depend on himself rather than on others. For Elisabeth, indeed, this counsel of perfection was too high ; to separate the senses from the imagination to her was hard, and she could judge coldly only after her passions had played their part : it was difficult to her to believe that happiness might be found through philosophy alone.* To prove this last, Descartes proposed to utilise Seneca's *De vita beata*, a new edition of which had been lately published by the Elzevirs.† On examination, indeed, Seneca was deemed insufficiently exact, and he proceeded to define his own views of what was signified by the blessed life, explaining that happiness was, of course, to be reached through that internal satisfaction which is independent of outward circumstances : and that however small our capacities for such happiness may be, we may satisfy them entirely, if we remember to make use of our minds to decide upon our actions, follow our reason, and accustom ourselves not to depend on what is beyond our own reach. We may, indeed, have desires, he says, but they must not be accompanied by impatience or sadness.‡ "Happiness is dependent on the right use of reason ; the study to acquire it is the most useful occupation one can have, as it is the sweetest and the best."

Elisabeth likewise found Seneca unsatisfying : the scope of his inquiry was too limited, and she missed the "Method" of her master. She felt no doubt what all feel who in real trouble try to comfort themselves with maxims however wise : the will was present, but the will is sometimes unable to accomplish its object alone. Sitting by the bedside of a brother who had, with no small trouble, been induced to submit to the rules of the physicians, she felt that some internal regeneration was required, of which the moralists did not tell her.§ Descartes tried to explain that to him "happi-

* *Corr.*, vol. iv., p. 234. † *Ibid.*, p. 253.
‡ *Ibid.*, p. 267. § *Ibid.*, p. 270.

ness is not the sovereign good, although it presupposes it, inasmuch as it is the self-satisfaction which comes from its possession." "Happiness indeed consists," he believes, "in contentment of spirit," and to reach that end we "must follow after virtue, firmly and consistently doing that which we believe to be best so far as we can judge, and employing all the strength of our understanding in making a good judgment."* He allows that the state of our bodies sometimes prevents our wills being free to seek for the end desired; but that is usually due to our not knowing the right way to set about it. In Descartes' view we can usually get the better of our defects, and if we do this, we shall be rewarded by a sense of satisfaction: and so the princess was informed she might overcome the obstacle which prevented her from playing the part of a philosopher, namely, the fact of being born to great station and being surrounded by the frivolities of a court.† "Pleasure is really measured," Descartes goes on to say, "by the perfection which produces it," and "the office of reason is to assess the value of those goods whose acquisition appears to depend in some way upon our conduct." It prevents our being carried away by sensuous desires or passions which make us look for satisfaction where none is to be had. "We must, by means of reason, estimate these two sorts of pleasures, bodily and spiritual, so that we may choose the best." And then, in the language of piety, he proceeds to point out that as there is an all-powerful and all-perfect God; and as the true object of love is perfection, we find in ourselves a natural inclination to love Him and even derive joy from our afflictions in the thought that they come from His hand. We should not fear death when we recollect the nature of our soul and its capacity for enjoyment beyond what we can find in this life: the vastness of the universe should make us sensible of the insignificance of our lives in the world. In serving God we similarly submerge all private interests in the great desire of doing His will.‡

Elisabeth found Descartes' letter and advice helpful

* *Corr.*, vol. iv., p. 277. † *Ibid.*, p. 283. ‡ *Ibid.*, p. 294.

in so far as the misfortunes of nature are concerned, but to her they did not seem to meet the misfortunes (of which she had so great experience) which come from the will of man, and which it is difficult to believe are otherwise than arbitrary: if the soul is so much greater than the body, why should we not, she says, seek death and escape from the ills and the passions of the body?* She points out also with much force the practical difficulties of her master's theories of right; for how are we to judge when we are to sacrifice ourselves for what we think may be the greater good, and how can we cease to follow unreasonable customs without bringing greater evils upon ourselves? As she wrote, for instance, the princess hoped in a country visit to find time for her studies, and yet she was forced to submit to the interruptions of social life, so numerous and so unwelcome to one whose station brought her few compensations for that of which it deprived her. To Descartes the sovereign good did not mean, of course, the *joie de vivre*, but the perfection of the knowledge of the truth: the greatest joys are thus serious, and laughter has in them no place.

Elisabeth's difficulties were thus not easily solved, though Descartes' friendship had proved the means of showing her how the life which had been so unhappy and, she felt, so useless, might be made happier and more endurable—sentiments charming to her correspondent "in his desert."† But she wanted more assurance of the state of the soul after death than Descartes could give her. To her "mankind was subject to many displeasures for every pleasure, error over-weighted truth"; satisfaction was far off, and she had not the assurances that might have comforted her. At this particular time this was specially brought home to her mind, inasmuch as her brother Edward had, to her infinite grief, in November of 1645, married Anne de Gonzague, sister of the Queen of Poland, and had, in doing so, adopted the Roman Catholic religion; to his devoted sister this meant not alone the disdain of the world, but a much more serious loss—that of his

* *Corr.*, vol. iv., p. 302. † *Ibid.*, p. 324.

immortal soul. Of course her correspondent could not be expected to see things in a similar light nor to appreciate what such troubles meant to her. "For myself," Descartes says, "the maxim which I followed most in the conduct of my life is to follow the beaten track . . . for the common laws of society respecting doing good to one another, or at least doing other men no injury, lead to the happiest life." Elisabeth's worries over family affairs and conduct seemed thus to Descartes troubling over matters that should not be permitted to give us trouble; while to her, with her hyper-sensitive nature, his outlook and advice cannot but have appeared somewhat unsatisfying and cold.

In all her tribulations, however, Elisabeth found time to study with diligence her master's treatise on the Passions (the first sketch of which had been sent to her),* as is shown by the various matters of difficulty propounded by her to its author; for his mechanical explanation of the origin of these passions was as puzzling to her as it has proved to many. Besides this, Elisabeth and Descartes had mutually agreed to read *The Prince* of Machiavelli, and the questions arising therefrom were full of interest to the young woman of royal blood, who felt that she was surrounded by special difficulties, owing to the fact that those she dealt with were not reasonable in their actions. In such cases Descartes recommended her perforce to allow her actions to be guided by experience rather than by reason.† A little later, in 1646, the Princess, indeed, had every opportunity for exercising her family virtues at a special crisis in her fortunes. A sad little note, sent for safety by a special messenger, tells her friend that her mother, her brother Charles Louis, and her friends have prescribed her absence for six or seven months; she trusts that she may once more have the happiness of seeing him before she leaves, and hopes that he will give her the solace of his letters in her solitude in Germany. This last disaster is shrouded in mystery; but as Baillet tells the tale it is probably substantially correct. Elisabeth's brother Philip had

* *Corr.*, vol. iv., p. 404. † *Ibid.*, p. 412.

been jealous of a young Frenchman named D'Espinay, who had obtained considerable influence with his mother, and this man had attacked him by night with some companions. The next day, on meeting him in the public market place of the Hague in full daylight, Philip stabbed him. The effect upon the queen may be imagined, and, in the opinion of Baillet, she considered that her eldest daughter was involved in the instigation of the plot, and despatched her speedily to Berlin; while Philip, who was proclaimed by sound of bell, went off to Brussels to serve under the Spaniards. D'Espinay had taken refuge in Holland owing to some scandal, and a contemporary writer gives an account of certain very disgraceful proceedings on his part, in which the queen and Princess Louise were both involved.* Had these tales any real foundation, no one could wonder at the indignation of Elisabeth and Philip, even though the little exiled court was by no means puritanical in its standards, surrounded though it was by puritanical tradition. Descartes had been drawn into this family commotion, and had evidently failed to pour oil on the troubled waters after D'Espinay's assassination.† He now paid one more visit to his dear friend and pupil, and this it proved was to be the last.

The friction with her mother may have been exaggerated—at least it appears to have been overcome two years later, and certainly it did not affect the reputation Elisabeth brought with her to Berlin for virtue as for wisdom.‡ She spent her time partly there and partly at Krossen in Silesia with her aunt, the Electress Dowager of Brandenburg, who fortunately received her warmly and somewhat soothed her wounded feelings: here she met the young Elector, and is said to have assisted in the instruction of his younger sister. At Berlin, at that time, of course, a remote centre of

* Tallemant des Réaux, in his *Historiettes*, vol. ii., pp. 287-289. See also *Lettres inédites de Brasset*, secretary to the French Embassy at the Hague. Both quoted in the new edition of Descartes' works.

† *Corr.*, vol. iv., p. 449.

‡ Bromley's *Royal Letters*, p. 309.

intelligence, she did her best to introduce Cartesian doctrines.* It must have been interesting to her to revisit the scene of her early training by her grandmother, William the Silent's daughter, who devoted so much of her life to the education of her grandchildren, and also made it her endeavour to give them only such instruction as should enable them to testify to the Christian confession by their lives as much as by their words. In the codicil to her will, she prayed that the "Lord might be a father to Elisabeth."

From Berlin, Elisabeth and Descartes carried on their correspondence as before, and she proposed to have a code whereby they might do so in safety. They continued here the discussion suggested by the reading of *The Prince*. With many of Machiavelli's views, Descartes naturally expressed his disagreement. He thought, for instance, that a distinction should be made between princes whose claims are just and those whose pretensions are otherwise, though characteristically he adds that he believes "the means taken by princes to establish themselves are nearly always righteous if they believe them so to be, since justice between sovereigns has limits other than those of private individuals; and in such contests God gives the right to those to whom he gives the strength.† This is the doctrine of Divine Right indeed! One cannot but remark that though his conclusions may be opposite, the arguments used by Descartes are not so very different from those adopted by the great diplomatist.

In her new home Elisabeth appears to have made the best of the circumstances in which she was placed, and Descartes trusted that happiness would bring with it health, and ventured even to maintain that "inward joy had some secret power of rendering fortune more favourable," though he held that this might be a dangerous doctrine to those of a superstitious turn of mind. Things done with a gay heart, he says, he had found more successful than that which he had undertaken sadly; and

* Dr A. W. Ward, *Historical Essays*, p. 341.

† *Corr.*, vol. iv., p. 487.

herein, he thought, the inward meaning of the Genius of Socrates lay, though Socrates might have carried this doctrine to a point of superstition.*

The next year (having on her friend's advice avoided drugs and doctors), Elisabeth kept her health "in spite of cold and German stoves," and attended, against her will, balls and fêtes given in honour of the Queen-mother of Sweden, Gustavus' widow; for it appeared that for various reasons she had to remain where she was even when the prescribed time of exile was at an end. The Princess Sophia, Elisabeth's sister, had assisted in her correspondence by acting as an intermediary in conveying books and letters, and to her Descartes writes in his most exaggerated style, comparing her face to "that of an angel from whom painters might derive their conceptions, while her mind had all the graces which philosophers admired."† This so much praised princess became the mother of the first of the Hanoverian dynasty.

Descartes' nature and Elisabeth's were different, and the friendship, though, as we shall see, it continued to the end, did not ripen as it might have done as the years passed on. Some of his last thoughts were, however, directed to the welfare of his illustrious disciple, and to an effort to promote her temporal interests. The life of the princess was, indeed, to follow a strange and devious course. When her brother Charles Louis' hereditary rights were at length restored, she went to live at Heidelberg, and subsequently became abbess of the Lutheran abbey of Hervorden in Westphalia, where she died on the thirtieth anniversary of the death of Descartes. It was strange that she was able to offer a refuge to her old friend Anna Maria Schurmann, when her views (which were those of Labadie, the mystic) were no longer tolerated in Amsterdam. A most interesting account of his visit to the two distinguished

* Baillet tells us that Descartes wrote a treatise *de Deo Socratis*, dealing with the dæmon of Socrates, but that it had been lost; in any case, we have no further testimony to its existence.

† *Ibid.*, p. 592.

women is given by William Penn the Quaker. One is glad to know that, after the storms of life, rest came at last. But though religion of a somewhat mystical kind brought with it peace and quietude of mind, Elisabeth never wavered from her allegiance to the doctrines she had imbibed while still a girl, and which, despite the questionings of a restless mind, sufficed to support her through the stress and trouble of a long and difficult life.*

* An excellent account of the Princess Elisabeth is given by Dr A. W. Ward, in one of the Historical Essays, published by Owen's College, Manchester, in 1902. Elisabeth was, of course, aunt to King George I. of England.

CHAPTER X

PUBLICATION OF THE "PRINCIPLES," 1644-1645

WHEN the lease of the Egmond house had expired, and when his *Principles* were completed, Descartes proposed to make a journey to France, there to arrange certain necessary business affairs with his eldest brother. His constant opponent, Gassendi, urged on by the importunities of Sorbière, who seemed ever to have acted as a busy-body and stirrer-up of strife, once more entered the lists against him, though he took the *rôle* of critic rather than that of an antagonist. Somewhat wearied of dispute, Descartes was only anxious to leave the matter alone, or at any rate to defer reply until after the journey to France which he was contemplating had been accomplished. Preparatory to it the affairs at Gröningen had been put in train; and after much correspondence and consultation, the conduct of them was left to the ambassador De la Thuillerie, and to the deputy from Gröningen to the States-General. Thus matters there seem to have remained dormant until the spring of 1645. Descartes had hoped that the printing of the *Principles* would have been finished before he left Holland, so that he could have distributed copies of the work in France; but owing to the usual delays it was not completed until July 10th, 1644. On May 1st, he left Egmond for lodgings at Leiden, preparatory to starting on his longer journey; and from there he made an expedition to Amsterdam to see his publisher, the great Elzevir, about his book, and then went on to pay a farewell visit to the Hague. At Amsterdam he made

arrangements in reference to the Latin translation of his Essays lately undertaken by De Courcelles, a French Protestant theologian who had taken up his abode in Holland, like many others of the Calvinist faith. The author, as usual, took the opportunity of making certain alterations in the text.

The news of Descartes' journey seems to have caused real anxiety amongst his friends, since they feared the attractions of his native land might prove too great for him, especially in consideration of the worry he had lately been experiencing in Holland. With Regius there had been somewhat strained relations of late, but yet he was as concerned as any about the journey, and went so far as to declare himself ready to follow his master wherever he went—a contingency which by Descartes would hardly have been deemed desirable. When the time for departure came, Descartes handed over the arrangements for the publication and distribution of his unfinished book to friends, and before he left he also saw Beverovicius of Dordrecht, who was publishing a collection of his papers and letters, including one upon the Circulation of the Blood.* It was towards the end of June before he reached Paris, and though he had intended to do his business in the provinces before visiting friends there, he could not help, in passing, paying certain calls on old and intimate friends, such as the Abbé Picot, Mydorge, and above all others, Mersenne. This last, true to his usual instincts, was not long in letting other friends know of the arrival of the distinguished stranger. Descartes, however, hurried on to Orleans, and at Blois visited De Beaune, who had written notes on his geometry. On his return to Holland he remembered these friends here and elsewhere, and sent them copies of his newly published book, which at the time he was not able to present. From Tours he went by Nantes to Rennes, where he met his two brothers, both members of the local Parlement of Brittany. After seeing them there, he visited, at his property at Crévis near Rennes, the

* Baillet, vol. ii., p. 216.

husband and children of his elder sister, now dead; and when most of the family assembled at his house, the business affairs which brought the philosopher to France were brought under discussion. The elder brother appears to have been difficult to deal with in the arrangement for dividing the family possessions; and if what Baillet says is true—and we have no reason to doubt it—René Descartes did not press his claims. In any case, though we do not know the details, matters were settled—according to Descartes' own account—not, indeed, as well as he could have wished, but better than had he gone to law.* His visit to France was not a great success, and did not make him so much in love with his country as to desire to settle in it, despite its superior climate and fertility. His relatives and he had probably drifted altogether apart, and though he had many friends in Paris, company was not what he sought for. The worries of his domestic affairs, and the distractions of his present life, made him long to return to the quiet of his life in Holland.†

The copies of the long-expected book reached the author while paying and receiving visits in the country, an occupation which seems to have taken up all Descartes' time, since he wrote to Picot, on his announcing that he was making a translation of the work, that he had not yet succeeded in reading the translation of the *Meditations* by De Luynes, which he had thought of as being a pleasant occupation for his journey. He paid a visit to Poitou, and there arranged with a notary to draw up a document, once more giving Bouëxie de la Villeneuve general powers to deal with all sums due to him. When he returned to Paris, he found Mersenne and Picot busy with the distribution of his book, which in this case had appeared in excellent form, as might

* Baillet, vol. ii., p. 219.

† While with this brother at Chavagnes near Nantes, where he was detained longer than he would have wished, occupied with the usual social life of the country, he became godfather to an infant nephew named after his Uncle, René (*Corr.*, vol. iv., p. 139—*La famille de Descartes, en Bretagne*, par S. Ropartz, pp. 109-111).

have been expected from the reputation of the printer, and from the length of time occupied in printing.

Whether during this expedition which Baillet chronicles so carefully (but of which we have little record in extant letters), Descartes visited La Flèche, the home of his youth, or not, we do not know, though that he had desired to do so is very evident from his correspondence. He writes enthusiastically of his school, in whose vicinity he must have been, and which, he says, it would give him great delight to visit once more.* He never tires of declaring how passionately he desires the friendship and approval of the Jesuit Fathers there and elsewhere. He did not wish, he says, that there should be any delay in the reading of his book, in case it might cause their acknowledgment that it was directed to the preservation of the Faith to be retarded until possibly he himself had passed away.†

In reading all these numerous expressions of regard, the question ever forces itself upon us as to whether the sentiments were entirely honest, or whether they were influenced by some external motives of self-interest or the like. It is a question, indeed, that cannot fail to be asked when the writer continually emphasises the assertion that he is in no wise breaking with Aristotelian tradition, or bringing scholasticism into disrepute. Though it was true that the times were difficult and that men were still suffering for their faith, the dangers to Descartes himself were probably almost non-existent. He had reason to dislike the petty persecution of the Calvinistic divines and magistrates of Holland, but yet he was always ready in season and out of season to enter into controversies with them, and as no want of courage betrayed itself in their regard, we can hardly make the accusation of cowardice against him. But if we judge him rightly, tradition held him in its sway to a quite remarkable extent, so far at least as what he fain would regard as unessentials were concerned. The teaching of his youth, the good-will of the Fathers of the Order to which he owed so much, and for which he still had so

* *Corr.*, vol. iv., p. 122. † *Ibid.*, p. 159.

genuine a respect—all these things counted as he himself might hardly have ventured to acknowledge. He had, indeed, struck out new lines of thought which were his own, but he liked to believe that his principles were but a development of what had been taught him in his boyhood. It certainly may have been the case that they in no wise fundamentally differed from Aristotle's teaching, though it was undoubtedly not true of Aristotelian doctrine as interpreted by scholasticism. When busied with the work that interested him most, his reason showed him clearly enough the way in which he had to go. But at another time and under other influences he was only too anxious to conform. In a letter quoted by Baillet,* in which he defends himself from the accusation of speculating without reference to the confirmation of experience, or on what we should call *à priori* grounds, he goes on to deprecate his being asked to refute the doctrines of the schools. At one time, he confesses, he was so minded "owing to the malignity of some of his opponents," but considering that those most interested in their support are those Fathers for whom he has so much reverence—many of them his real friends—"he has hitherto abstained from so doing, and framed his principles so that it might be said that they were not contrary to, but simply an enrichment of the orthodox doctrine." In the Schools, he points out, many varying opinions were accepted, even though inconsistent one with the other; and if this were the case there, why should not his views also be received? This attitude is not of course a satisfactory one, nor is it one which can be defended; but it shows the nature of the man in his weakness as in his strength—the lack of courage in certain matters which is so often combined with absolute freedom from fear in others.

On his return journey to Holland only ten or twelve days were passed in Paris—days well occupied in making numerous visits to old friends of former days, and others to whom his fame had travelled. Once more he went to see the College at Clermont, where the recon-

* Baillet, vol. ii., p. 226.

ciliation with Bourdin was formally concluded, so fully indeed, that Descartes was made a sort of centre for correspondence with Jesuit Fathers in the provinces. Descartes also saw his translators, the Duc de Luynes and Clerselier. Clerselier was a devoted Cartesian, and afterwards the editor of Descartes' works: according to Baillet, his principles went so far as to make his daughter marry against the wishes of the rest of her family, and even of the bridegroom himself, because he believed his future son-in-law would be a pillar of the new philosophy. Such devotion surely could hardly be surpassed! It was Clerselier who introduced Descartes to his brother-in-law Chanut, a most sincere admirer also.* Chanut held a post under government which gave him considerable influence, and exerting that influence he introduced his new friend to those in power who were likely to be of use to him. He tried indeed at this time to negotiate for a pension to be granted to the philosopher through Cardinal Mazarin, but the attempt was unsuccessful, and Baillet tells us that Descartes consoled him by telling him that this was not the sort of help he sought for, and that, satisfied with what had been given him by God, he felt his duty was to consecrate to the public service all that he had, his talents and his patrimony, without seeking to lay hold of what pertained to others. We shall hear more of Chanut later on. He was appointed ambassador to the Court of Sweden—an appointment which had great results for Descartes who soon had the pleasure of seeing both Chanut and his wife at Amsterdam, where they visited him on their way to Stockholm.

During this short visit to Paris, Baillet had been told that Descartes went nearly every day to Mass with the Théatin Fathers recently established in France.† He

* Baillet, vol. ii., p. 243.

† The Théatin Order was founded in the sixteenth century with the special object of reforming the Church from within, and the rule was very strict. Cardinal Mazarin invited four of the Order to Paris in 1642, and gave them a house named Sainte Anne la Royale, in compliment to Anne of Austria.

also pursued his acquaintanceship with Sir Kenelm Digby, a frequent visitor to France after his imprisonment in England, whose name with strange variations of spelling so often appears in Descartes' life. It was he who, as we saw, invited the philosopher to visit him in England.* Digby was a Catholic, and he had with him a priest named White, but better known as Anglus, for whom Descartes conceived, from his friend's account, a high regard. When, however, he was allowed to formulate objections to the Cartesian system, his effusions appear to have been far from comprehensible or clear.

After renewing his relations with Roberval, with whom he forced himself to be on friendly terms rather against his natural inclinations, and after saying farewell to Mersenne, who was taking his departure for Italy, Descartes made his way to Calais, there to take ship for Holland. But adverse winds detained him at this place, where he occupied himself with reading Picot's version of his *Principles*—a translation he found much to his taste.† It was November of 1644 before he really reached the Netherlands, and whenever he arrived he went straight to North Holland to take up his abode at the tiny village of Egmond-Binnen, close to the other Egmond, in whose solitude he considered he would be free from the importunities of friends. He also wished to bring to a conclusion the controversy with Schookius at Gröningen, so that he might have complete repose of mind in future. This was the more easily accomplished in respect of the favour of the estates of the Province of Utrecht. In the end the matter came before the Senate of the University of Gröningen, and judgment was given in Descartes' favour in February 1645. The Senate held that such disputes were unseemly amongst philosophers, and that Schookius' excuses should be

* Digby was an occultist, and joined to his interest in physics another interest in the invention of new cosmetics to preserve his wife's great beauty. But, though in many ways an oddity, he was one of the earliest members of the Royal Society of England, founded about 1645.

† Baillet, vol. ii., p. 247.

accepted. When Descartes heard some three weeks later of the sentence (so slowly did news travel), he wrote to his friend in the professoriate, Tobie d'André, to thank him for his good offices. He had made up his mind to overlook what he considered the tender treatment of his adversary, adding that of all things he desired peace the most, and that we should recollect that "hatred of the smallest animal, be it only an ant, may hurt, but can never be of use."* The deliverance of the judges was sent to the Utrecht magistrates, and this seems to have aroused the ire of the redoubtable Voetius; despite the order of the magistrates that no further writings should be published on either side, his son began to write against the judgment, arguing that the case was not properly conducted. A coolness had arisen between Voetius and Schookius over the matter of a Chair to which the latter aspired, which somewhat complicated matters. Voetius' action, Baillet tells us,† drew a final reply from Descartes, who composed an address to the Utrecht magistrates, before banishing the whole matter from his thought: at last he was able to set aside the long and not always profitable dispute that had occupied so much of his life in Holland, sometimes to the detriment of other and more valuable work.

An interesting correspondence at this time, and one which has been much neglected by commentators and others because of the dangerous nature of the views contained in it is, of course, produced from Clerselier's collection in the new edition of Descartes' works. It is addressed to the Jesuit Father Mesland, and deals with the subject of Transubstantiation. Descartes' explanation of this mystery sounds strangely to us to-day: he considers that the superficies between the bread (*i.e.*, the Body of Christ) and the surrounding air is a mode which cannot be changed but by changing that in and by which it exists. This curious doctrine maintained that there are three superficies, that of the bread, the air, and that between the two, all of which are one, excepting as we discriminate amongst them by

* *Corr.*, vol. iv., p. 215. † Baillet, vol. ii., p. 161.

our thought. It is by the central one that the figure exists, and by it, it can change. Since the bread has become the Body of Christ, though the surrounding air may change, this central superficies remains *eadem numero* as before, just as the Loire is the same river though the water may alter and the banks be different. Descartes' view was that he could make his doctrine consist with that of the Council of Trent, but his caution was so great in entering on these dangerous topics, that he begs his correspondent to keep the matter private, unless he considered it to be in accordance with the doctrines of the Church. With this guarantee he goes on to point out in detail the different sense in which the living body (which is capable of change, of loss of limbs, etc.) is one and the same, so long as it keeps its identity with soul, in contradistinction to body in the ordinary or inorganic sense, and how food which comes into the body is in one sense body and in another bread.* This natural process is not miraculous, but in the Sacrament there is first the miracle of the words of the Consecration forming a supernatural change, and then, when the Host enters the body, it remains united to the vital organs of man even if they are separated one from another. That is, the Body of Christ is only once in the Host before it is divided, and yet it is there entire in each of its parts when it is divided. This strange letter with its fine-drawn subtleties and desperate effort to reconcile orthodoxy with reason, its alterations and omissions, and the anxiety which it shows respecting what will be thought of the views it expresses, throws an interesting light on Descartes' own attitude of mind with its subtlety and reasonableness, its self-reliance and certainty, combined with a strenuous desire to reach conformity with the views of others. It was hard for him to reconcile the doctrine of extension as the essence of matter with the

* The human body, as he points out, is numerically the same as ten years since, though every particle of it may be different, since body depends not on its matter but on its form, which in this case is the same (*Corr.*, vol. iv., p. 346).

teaching of the Church, which held that the Substance of Christ's Body became the Host in the bread, while the latter remained the same in its sensible properties; but he attempted it courageously. The letters on this subject were the occasion of great discussion and debate amongst dignitaries of the Church, who were, in some cases at least, cautiously favourable.* But Baillet only quotes in fragments, and Bossuet objected to their publication altogether. Indeed, they were not printed until the year 1811 by the Abbé Emery in his *Pensées de Descartes sur la Religion et la Morale*, and subsequently by Bouillier in his *History of Cartesianism*, although manuscript copies were freely circulated, in spite of Descartes' request to Mesland respecting the most important, that it should be destroyed as not worth keeping.† He felt in his little "corner of the world" in a measure secure of what men might say of him, though, at the same time, he betrayed, as ever, extreme anxiety as to how his teaching would be regarded by the orthodox. A final letter to Mesland is one of the most curious of all. It is a parting message to the priest on his departure on a missionary journey to "convert the savages." Descartes assures him that his gifts would be better expended in converting the atheists at home, who will only be persuaded by the evidences of reason, and he trusts that "after the expedition has been made, and many thousands have been converted to God, the same spirit that took him there will conduct him safely back."‡

The publication of the *Principles* naturally brought in its train a considerable correspondence during this year, 1645. Gassendi, in particular, was ever ready with his criticism of a book which he believed, as he told Rivet, would not live as long as its author, and which aimed at dethroning the authority of Aristotle and the Schools in order to replace them by a new

* *Corr.*, vol. iv., p. 171. † *Ibid.*, p. 216.

‡ It has been stated that Mesland was sent to Canada (where he died) because of his too close relationship with Descartes (*Corr.*, vol. iv., p. 345).

theology.* At the same time both Elzevir and Maire complained of the little sale obtained by the *Principles* and the *Essays* respectively, so that it was probably but a limited number of persons who took the pains to read them. It might not be great consolation to the author that in a book of poems he and his doctrines were made the subject of a poet's arts. Cartesianism was always attractive to the literary world of the seventeenth and eighteenth centuries—both to the writers of prose and poetry. Baillet, in extravagant language of praise, tells of another writer, who composed a Latin poem, *De Rerum Natura*, which was an exposition of Cartesian doctrines, and we know the hold taken by Cartesianism in the Paris *salons*. The doctrines of Descartes were also, to all appearance, becoming popular in the universities, but in Utrecht his follower Regius began to give him serious anxiety. For some time there had been symptoms of difference between the two, but these came to a head during Descartes' absence abroad, when Regius composed a treatise on Physics which he sent to him as usual for his approval and criticism. In reply, Descartes told him bluntly that he could not give any general approval to the work, that there was much in it that did not please him, and that he might have publicly to disavow it. Regius, however, forestalled him by inserting a declaration to the effect that his opinions, as would be seen, did not by any means correspond with those of "that excellent man, M. Descartes." And in reply to a further communication from Descartes which pointed out that he had insufficient knowledge of the subjects of which he treated, Regius wrote a distinctly impertinent letter, in which he tells his late master that he will only injure himself in differing from him, that many people were convinced that Descartes did not express his real convictions in print, and that he had, by his *Meditations*, discredited his philosophy by obscurity and uncertainty; and the disputes which he had had intensified that belief. Such people would see, he continues, that the writer, who had once been in com-

* Baillet, vol. ii., p. 264.

plete touch with Descartes' doctrines, was now forced to dissociate himself from his teaching. The apostacy of so ardent a disciple must have been a severe blow to his former master. He wrote in reply in as moderate a spirit as one could have anticipated,* but his feelings on the subject cannot but have been bitter in view of the animosity already existing against him elsewhere. Furious attacks had been made by those he knew to be his opponents, but in this case it was a friend and follower who had risen up against him.

Descartes was this year much occupied with the revision of the various translations of his work by Clerselier, Picot, and De Luynes. He likewise corresponded with an Englishman who appears to have been the Marquis of Newcastle, to whom he propounds his theory of the manner in which animal heat is produced, and explains that circulation of the blood, which Harvey had "very happily discovered." There was also under discussion about this time the perennial puzzle of the quadrature of the circle which was greatly occupying the mathematicians of the day, and more especially John Pell in England and Christianen Severini in Denmark, while of Descartes' friends Mersenne, Roberval, and Huygens were much interested in it. Descartes himself was consulted on the subject, which, of course, appealed strongly to him.

As to the verdict on his book, he awaited it with patience, trying to assure himself that the approval of the learned was often no good omen. The treatise on animals was, however, that which was engrossing its author's attention most of all. At his little home at Egmond he had behind his room a sort of gallery opening into the court, where he made his dissections, and it is told by a friend of Sorbière, who called upon the distinguished worker, that on asking him which were the books he valued and read most, he was conducted into the annexe, where a calf was being dissected, with the words: "There is my library, and that the study to which I now attend the most." The

* *Corr.*, vol. iv., p. 248.

results of this work are to be found in the various treatises on Physiology published after Descartes' death. The subject was one which never ceased to interest him in one form or another, and it was one to which, despite many interruptions, he constantly reverted.*

* A strange tale was circulated by Descartes' enemies to the effect that he had made with much ingenuity an automaton in the form of a girl, in order to prove that brutes are mere machines and have no souls. Descartes was said to have taken this automaton on a vessel, packed in a box. The captain had the curiosity to open the box, and as the figure appeared to have life he took it for the devil and threw it overboard !—*v. Biographie Universelle*, etc.

CHAPTER XI

THE PRINCIPLES OF PHILOSOPHY

PHILOSOPHY, Descartes tells us, is simply the study of all wisdom; and to pursue that study rightly we must begin by mastering the principles. These principles must be absolutely clear, since on them all true knowledge must depend. "Living without Philosophy," he says in a passage of much eloquence, "is, in truth, keeping our eyes closed without attempting to open them; and the pleasure of seeing all that sight discloses is not to be compared with the satisfaction afforded by the discoveries of Philosophy. This study is more essential for the regulation of our manners, and for directing us through life than is the use of our eyes for directing our steps."* Doubt, he continues, must accompany true speculation; and this brings us to the point that Descartes is never tired of emphasising, that Doubt leads to Certainty—that Certainty which is to be found not in the evidences of the senses, but only in the understanding, or in the evidence of Reason. If we would know God, we must apply our Reason to the knowledge of our selves. The tree of knowledge has its root firmly in the ground, and its root is found in metaphysics. "Philosophy is like a tree of which Metaphysics is the root, Physics the trunk, and all the other sciences the branches that grow out of the trunk."†

The teaching of the *Principles* is, as will be seen, in no wise different from that of the *Method* or the *Medita-*

* *Principes*, p. 11 (Cousin's edition).

† *Ibid.*, p. 24 (Veitch, p. 184).

tions, but we feel in reading the book that the teacher has become an older and more developed man, and that his experience is more mature. He holds himself to have reached firm ground, and believes that he has succeeded in sweeping away the cobwebs of scholasticism, and making a fresh start. In his view the methods of the schools were not methods capable of development, or of leading men to find the unknown from the known; they were occupied with tedious controversies, and varying interpretations of accepted facts and principles. Put these aside, he once more says, and go back to the foundation; look for true knowledge and not at the outsideness of things. This doctrine, which in different ways had been taught by the Reformation without the Catholic Church, and by the Augustinian movement within, had to be philosophically worked out and expressed in order to appeal to the learned of the day, and to become an inspiration in the great world of thinking men, and this is just what Descartes did. Cartesianism was no reversion to any documents however sacred, but an appeal to what manifests itself as true independently of place or time; it was the effort to find reality, not in mere appearance, but in the knowledge of the understanding. Its great value lay in its fructuating force, or in the very element which had seemed most wanting in contemporary thought.

In the *Principles* we once more have an exposition of the method by which we are to find deliverance from the Doubt with which we start, and are shown how we may find God-given truth by the clear light of nature. And in this work we have enunciated even more plainly than before the definition of those mathematical conceptions in which Descartes holds we may find perfect certainty, and on which his whole scientific system rests. So constantly does he emphasise the necessity for this new way of looking at the world of nature, that it seems as if his system were built up to justify his belief that certainty is here and here alone. If we really have succeeded in discovering some region in which our reasoning is absolutely clear and certain, we have just

to show how our reasoning in other regions may be brought under the same conditions, and made equally irrefutable, and this was Descartes' constantly expressed endeavour. Whether or not we accept his conclusions, or grant the same high place to his theory of new-found certainty that he accords it, we see the value of the newly-established system when taken as a symptom of the fresh awakening that was to do so much in the scientific world.

To Descartes man's position is a high one in so far as he has the absolute power of judgment respecting that which appears to him to have the necessary qualities of truth: his knowledge must be judged by him to be "clear and distinct to his attentive mind, and then it is absolutely certain to him." Of course the evident difficulty of this doctrine is that we look for some criterion of the truth other than this which is presented to us. A man is convinced, for instance, that he has seen a ghost; and yet another man or another age tells him that he is labouring under a delusion. Any subjective form of judgment is clearly liable to error. If a thing is stated to be true it must surely therefore be something which fits in with our whole conception of reality and not just with one particular side of it. To Descartes, the clear and distinct was something that could be called so for all time and under every condition, and this fact alone laid him open to criticism from those who found that the knowledge so built up had no more real stability than what had gone before. Each substance, he says, has a special attribute—soul that of thought, and body that of extension—but then the question is once more asked, how are we to know that what the senses tell us is anything (such as extension) that we can put a name upon? Certain appearances certainly seem to strike upon the eye, or sounds upon the ear, but it is of course absurd to imagine that in themselves they can convey to us any meaning, since they are but vibrations of light or sound, which we could not even state to be such without an interpreting intelligence. Descartes, indeed, recognises that the senses cannot be

regarded as the means through which outside impressions reach the mind, and that somehow there must be a fusing of the two, however inconsistent this may be with his view of mind as thought alone. His dualism is not really consistent, for he certainly is sensible of the difficulty of associating the bodily with the mental, when they are regarded as two separate existences, each independent of the other; and yet he continually talks of them as such. In reality the intelligence which he treats as ultimate in knowledge is probably something which reaches beyond these limitations. He recognises, for instance, that duration, order, number, are modes whereby we look at outside things. Time, *e.g.*, he defines as the manner in which duration is conceived; we create a standard of time by means of motion, and argue that it must also apply to things unmoved.* Such conceptions he takes to be dependent on our thought, but he cannot satisfactorily explain the persistence of time from one moment to another, excepting by once more introducing the refuge of the philosopher in difficulties—the conception of a constant exercise of the Power of God.

In the *Principles* Descartes tries to make his dualism more comprehensible by explaining its nature further. He distinguishes conceptions such as soul and body, which can be thought of clearly and distinctly as quite apart, from those like figure and movement which are only modes one of the other. From these again he distinguishes what is separated alone by thought, such as a substance of which we have no complete conception without including its attributes; extension and divisibility, for example, cannot, he says, be clearly thought of apart or separate from body. For us, however, it is the separation of the two sides at all that is difficult to conceive of, for the conception of substance would be meaningless unless we had both the notion of a thinker on the one hand, and an object of thought on the other; a thinker without an object would be as meaningless as

* Arnauld, in his letter in 1648, cannot understand how time can be conceived of independently of motion.

an object of thought—a body—which is independent of thought relations, and is, indeed, something of which we cannot even predicate existence.

The second part of the *Principles* starts on a detailed discussion respecting the reality of Body.* Is Body real, or is it possible that we are deceived by God? Descartes asks. Pain and many other sensations tell us, he says, that our soul is joined to a body, or that our body is joined to a soul, and we know something of whether bodies are harmful or the reverse, but as to their nature otherwise we know nothing. To Descartes, body and extension are, of course, synonymous, and he believes that, however far the process of rarefication is carried on, some other matter must occupy the space left vacant in the rarefying process, since a space which is unextended is inconceivable and impossible.

Now it is difficult, indeed impossible, for us to conceive a matter whose only attribute — to use Descartes' scholastic phrase—is extension—a matter which is so homogeneous in character that there are no qualitative differences present in it at all. What would such matter be? We could not, as he acknowledges, imagine it; but how could we, in any sense, conceive or understand it? We are supposed to be able to reason about it from the geometric standpoint; but without any sensible qualities we could not bring before ourselves the conception of the simplest geometric figure. A triangle which was devoid of all qualities except extension would be something which we could not place before our minds; we must conceive of the figure as limited by certain definite boundaries called by us straight lines; we must place before our minds what we consider a straight line to be; we must consider whether we are talking of a plane, and if so, what significance a plane has to us, for, of course, to have such a conception at all involves us in the use of qualitative distinctions; we find, in short, that we cannot set before ourselves the apparently simplest conception, or form the most elementary judgment without making use of the

* *Principes*, p. 120.

categories of knowledge. This, then, is the objection to Descartes' clear and simple view of knowledge, by which he thinks he can get rid of all opportunity for error to come in and falsify his results. Descartes' geometric theory which was to be so clear and simple, loses its value when we find the complications involved in every judgment; we find that we cannot keep our "imagination" separate from our "conception" or "understanding" as he would have us do, for the one involves the other, and to separate them merely means to isolate for the time being one aspect of the judgment. At the same time this point of view, abstract as it was, had its uses to those who were striving for clear conceptions. "Clear" conceptions, as was afterwards learned, are not easy to obtain, and are apt to be deceptive; but in this case they enabled men to set aside much that was false, and start forward on fresh lines of thought; they allowed them, despite their metaphysical limitations, to do most valuable work on scientific lines, and this because the arguments were rational and honest.

In the Cartesian system motion, however difficult to explain, has, of course, somehow to be introduced into passive matter or extension.* Motion is the change of position in one body in relation to others which must be considered to be at rest, and its quantity is, by Descartes, regarded as being constant. Some action, he considers, is involved in rest as well as motion—that is to say, his idea of inertia is not that of passive resistance, but of an active power. Just as movement continues to go forward till the motion is carried elsewhere, so does rest continue until broken in upon by the transference to it of motion. With Descartes one law of nature states that everything remains as it is, perseveres in the same state of rest or motion, if nothing occurs to change it; a second that, if a body is in motion it continues to

* Smith, in his acute study of the Cartesian doctrine of motion, points out its inconsistencies. By Descartes, motion, he says, is regarded as a separate entity "existing in matter like salt dissolved in water" (Norman Smith's *Studies in Cartesianism*, p. 76).

move in a straight line, unless interfered with, and a third that, if one moving body meets another with more force than itself, the smaller one loses nothing of its motion, and if it meets one with less force than itself, it loses just what it gives to the other. He lays down these principal laws of nature which represent the doctrine of inertia hardly apprehended by Kepler or Galileo, as also seven secondary laws respecting impact which are, however, largely incorrect. All corporeal things are, in Descartes' view, divisible, or are what in geometry is called quantity, and it is this quantity whose divisions, figures, and movements, are by him discussed.

This view of motion was an interesting one, since by it movement is not regarded as that which comes and goes, but as an abiding quantity; and, in this view, Descartes undoubtedly approaches more closely to the modern standpoint. The conception of force certainly was to him obscure, but that of motion is looked at as the true physical conception, the ultimate ground of which is found in God, and which increases never and diminishes never; he had, indeed, a theoretic notion of the doctrine of the conservation of motion—at least he held that the quantity of motion in the universe always is the same. Man cannot alter its sum, but only change its direction. It is, indeed, just the changing of position of one body in relation to those bodies in close connection with it. But the difficulty is to see how Descartes establishes its reality as something self-subsistent, or, at least, if dependent on matter, as separate from it and from mind. Descartes had not by any means rejected in their entirety the classifications and divisions of the schools. He had, of course, a real difficulty in explaining where motion had its origin, and how it continued to exist or pass from one body to another. Here, as elsewhere, it seemed necessary to call in the assistance of the Deity, as the persisting power. He never grasped the conception of Knowledge as something including the relations of time and space, nor realised how motion can be, so to speak, isolated as a conception by itself,

only when we remember that other sides of Knowledge are necessary to comprehend its meaning.

The third part of the *Principles* is occupied with the discussion of the visible world, or more accurately, of the heavens and all pertaining to them. The writer, as usual, when beginning such a discussion, takes the precautionary measure of guarding against the possibility of being supposed to be inquiring too curiously into the designs of the Almighty. The doctrine of Design is an excellent one to preserve, he says, but who are we to take upon us to say what God's designs may be? This enables him to apply his Method freely while yet safeguarding his position with the Church. With this proviso he goes on to discuss the positions of the planets, stars, and earth in the light of the latest scientific knowledge of the day. He discusses all the systems hitherto propounded, the Ptolemaic and Copernican, as also that of Tycho Brahe, and gives his verdict more or less in favour of the last, which seemed to avoid some of the difficulties into which the others might have brought him. By the system he describes, the heavens are regarded as in a liquid state, carrying with them the bodies they contain; the earth and other planets rest in their heaven, but allow themselves to be transported along their way; thus it is hardly correct to say that the earth or the planets move, although they are being all the while carried on. The earth again is carried round its centre, and the moon travels round the earth. The earth thus changes its position in regard to the other planets, but not perceptibly so far as the stars are concerned, because of their being so far away. This theory, which does not differ so very much from that of Copernicus, will, Descartes believes, be found to meet all the necessities of the case, and yet appeal to some who had difficulty in accepting the Copernican view in its entirety. Tycho Brahe believed the earth to be stationary in the centre, and thought the sun and moon revolved round it daily, while the planets revolved round the sun, and this seemed to account for the phenomena of the heavens as

well as the theory of Copernicus, however improbable it might in itself appear. But there was a later modification of his doctrine which allows a diurnal rotation of the earth, and Descartes' view represents a yet further stage in treating the earth as any other planet. He conceives, *i.e.*, of the whole of the planetary system being carried round the sun in a sort of vortex, while the various satellites of other planets move in lesser vortices within the greater vortex, and he argues that this theory is much more probable, and also involves less movement than does Brahe's; for the earth's separating itself from the rest of the system and resisting its motion, as Brahe would have us to believe, is tantamount to a motion of its own. In Descartes' system the earth is in a sense at rest, but only as a man might be at rest who was yet being carried along in a boat. He himself points out that he is but constructing a theory, and all he claims for it is that the facts of nature may be shown to be explicable by its means. As he puts it, some of his hypotheses must be false if we take for granted the orthodox belief that the world and all that is within it is created from the first, just as we see it, and God doubtless is all-powerful and can create perfection. Still he naïvely tells us (and we see the natural man revealing himself beneath the mask so manifestly assumed), it is interesting to trace how these things *might* come to pass, how the visible world might be produced,—in fact, to show a working theory of the world.

Descartes proceeds to show how this vortex theory may be used to explain sunspots, comets, and other phenomena of the heavens. The extended universe, full of matter, uniform in character though divided endlessly, and set in motion by God Himself, is to him a universe that we can know and understand, if we but try to apply ourselves thereto in the proper way. In his view we cannot err if we but study the operation of the laws that govern it. The movement of one particle affects the whole; the last of the series, so to speak, steps into the first, and as the figure of the particles varies throughout the universe, a series of circular movements

or vortices arise, such as make one's head whirl. This vortex theory was doubtless a magnificent conception as a mechanical explanation of the movements of the universe. At one stroke the whole universe, celestial as well as terrestrial, was brought under the same laws and system ; matter was alike everywhere, and governed by similar principles, and the old Aristotelian distinctions were abolished, just as were those of the spirits who used to be held responsible for the planetary motions. The explanation might be hypothetical, but Descartes undoubtedly makes gravity conceivable, and brings all nature, so to speak, under ordinary mechanical laws. The defects of his system soon became evident, as did the various facts (such as the ellipticity of the orbits of the planets) that were not explained. All was made clear and simple while the reasoning was really *à priori* and dogmatic ; but it is easy to imagine how, before Newton had done his work and formulated his law of gravitation, which threw a flood of light on what formerly was obscure, this system must have been greeted by those who were looking earnestly for some solution of the manifestations of the outside world. To have a system presented to them in which the phenomena of the heavens could be rationally explained by ordinary mechanical methods which everyone could understand, was indeed an advance of no ordinary kind, and in this the value of his system rests.

The fourth part of the *Principles* deals with the earth and terrestrial bodies on a basis similar to that which was elsewhere adopted. The earth is regarded by Descartes as having possibly once been a star which had obtained its place as planet through the operation of the vortex theory, the less subtle parts having become something of the nature of clouds or air. He explains the nature of the various particles of which the earth is constituted and their forms, tracing how mountains, valleys, and seas are constituted by the accumulation of the particles, and describing the composition of the sea and tides, which last he believes are easily explained by the theory of vortices in connection with the moon.

Freshwater springs, again, are said to be brought about by cavities within the mountains which are full of water; the heat causes the water to rise continually in a vapour which passes through the pores of the outside earth and mounts to the tops of hills; in its form as water it cannot return as it came, and therefore it forces its way out as springs; the water finally makes its way to the sea just to return again (leaving the salt behind) through the bases of the mountains, thus preserving a constant circulation like the circulation of the blood.

In concluding, Descartes explains that he has dealt with every sort of phenomenon without breaking with the old Aristotelian traditions. He has considered *how* we can know and *what* we can know, and he declares himself to have found that the principles of geometry and mechanics supply a satisfactory key to all the phenomena of nature, and that no other principles supply their place: the rules of mechanics are present in nature, and the building up of a tree can be regarded just in the same way as we regard the building up of a watch. And thus he founded through his *Method* that great school of thought which has largely dominated the thinking science of later times. To show that the universe is governed by mechanical laws—laws of which we can be absolutely certain—and that Galileo's discoveries simply indicated this, was Descartes' great endeavour. It was as though a new world were being opened up before mankind—a world reducible to terms of mechanical law. The body and the clock are to be treated on similar lines. As Huxley says: "You may take away the hands of a clock and break up its striking machinery, but it will still tick: and a man may be unable to feel, speak, or move, and yet he will still breathe."* To call Descartes, the founder of the modern idealistic school, a materialist, would of course be wrong, and yet it is on his conclusions that the arguments of the materialists rest, as do those of the men who say that all the knowledge that we can have is a knowledge of our states of consciousness, and thereby

* *Lay Sermons*, p. 292.

reach the sceptical position of Hume. And if we accepted Descartes' position as set forth in his *Principles*, that most important exposition of his philosophy, we should be entitled to adopt the materialistic position too. But Descartes had another side, and one really incompatible with this. He believed in the existence of a spiritual principle as real as the material principle and altogether separate, and imagined that the one could exist alongside the other. He did not seem to perceive that an outside world of extension could not possibly exist in separation from the perceiving mind; or that, on the other hand, to conceive of mind or soul apart from body would be just as impossible, since there can be no connection between the material world and the immaterial soul, nor can the one be influenced by the other. The bringing of these principles into unity was to be the work of future generations; it gradually became clear that matter could not make mind, and that sensations proceeding through the nerves to the brain could not in themselves have any signification unless in relation to an interpreting consciousness. And with this last they had in Descartes' view no possible means of communication, since the physical is something other than the spiritual and independent of it. It also became clear that to reverse the process and commence with mind was equally unsatisfying. For when we convert the world into a series of sensations we are in no way better: sensations can mean nothing to us apart from the judgments we form of them, and it is these judgments that constitute our experience in thought: we could not say that they existed unless by constituting them into realities by reflection. And this Descartes recognised in founding his whole system on Thought and Knowledge, or as we now call it Experience. What he did not show us is how that Knowledge became Experience; how the outsideness of the world could be broken down and constituted a part of it; how the fact that we *know* proves the other fact that we *are*, and that the world *is* in very truth: sensations pass without our being able to say they are here and now, but Knowledge abides as per-

manent and real: the world as Thought is a world of necessary relationships, and no longer an arbitrary conglomeration of impressions. Descartes' *cogito* means more than his subjective *sum*, with a world outside regulated by laws which are rational and comprehensible indeed, but in an altogether different sphere from that of the perceiving mind. The fact that he acknowledged and demonstrated their reasonableness was an all-important one, but a further step had yet to be taken. It had yet to be shown that the "clear and distinct" truths were not clear and distinct because they were governed by certain laws of geometry and mechanics, which were the laws of an outside world controlled only by itself: it had to be shown that though within their own sphere these laws held good, they did so only there, and that to understand them rightly we should have to view them as subject to the larger conception of mind manifesting its reality in the world, of spirit coming to a knowledge of itself. The clear and distinct knowledge, however certain at a first view it may seem, becomes blurred when we get beyond its own narrow limits, when we ask questions regarding the meaning of such conceptions as those presented by development and life, and even when we inquire too deeply into its own assumptions, and find its conclusions based on certain abstract conceptions assumed for its immediate purposes. We discover in the end that true Knowledge is capable of interpreting to us all phenomena, not as mere phenomena, but as a portion of itself. Its business, indeed, is not to interpret a world of mystery outside, but to reveal the treasures it contains within itself. In this way we rise beyond the vain disputes of rival systems and rival teachers. We try patiently to find the truth in each, the meaning of the error as well as the limitations of the true. And so Knowledge rises to its true heights, and shows itself to be no mere seeking after an illusive will-o'-the-wisp of truth that ever passes on as system follows system; it shows itself to be both the seeker and the sought.

CHAPTER XII

INTRODUCTION TO QUEEN CHRISTINE, 1646-1648

In the year 1646, Descartes found himself still happily established in his place of retreat at Egmond, despite unfavourable climate and paucity of neighbours. One of his interests there was found in watching the development of a little experimental garden, whilst his strenuous efforts were being directed to comforting his much-loved friend Elisabeth in her manifold tribulations. The reply to the *Instances* of Gassendi was also occupying the philosopher's thoughts, since Clerselier was busied in preparing the French edition of the *Meditations* with the "Objections" and "Replies." In publishing that edition of the "Replies," Clerselier very wisely softened the writer's language, which perhaps sounded stronger in his native tongue than it had done in the Latin in which it was originally composed. With Clerselier himself Descartes carried on a considerable correspondence on many matters, one of which was the famous puzzle of ancient times, which we know as the problem of Achilles and the Tortoise. This puzzle, originally propounded by Zeno, tells us, as we all remember, that Achilles set out to overtake a tortoise which had already started on its way; the tortoise, however, had gone a certain distance before Achilles reached the point from which it made its start. By the time Achilles arrived at the point which the tortoise thus reached, the latter had gone a little further. This process goes on indefinitely, and hence to all appearance Achilles can never really overtake the tortoise. Of this

puzzle Descartes' explanation is that a quantity infinitely divided, though infinitely divided in one's imagination, is not for that reason an infinite quantity, but, on the contrary, a finite one, and therefore he holds the difficulty to be non-existent.*

In addition to the Gassendi controversy, Descartes was occupied during the winter of 1646, and while waiting for his plants to grow, with his work in the *Passions of the Soul.* The writing of this work must have been due to the urgent entreaties of Chanut and other friends, since Descartes himself had shown great unwillingness to appear further in his capacity as author. Baillet says he never published without regretting it, and certainly his publishers did not encourage him to do so, for complaints were constantly received as to the small sale of his books. Chanut endeavoured to comfort him as best he could in his regrets over the limited number of his readers. His own personal interest was, as he tells him, in Ethics and Religion; but Descartes, while quite allowing the importance of questions such as these that concern the world and its Creator, states that his scientific work was not without its influence in such regions, since the Physics which he had tried to master had been of the greatest value in assisting him to establish a satisfactory basis of morals.† His difficulties in respect to medicine, however, had, as he regretfully acknowledged, proved greater than he anticipated, and he now felt sure that the aim of his ambition, to prolong life, was not to be accomplished; none the less he had learned, as he tells us, that far more important lesson, that if death must come it need not at least be feared.

Before Mersenne's departure on his journey, and after his return, Descartes carried on a correspondence with him respecting the views of Roberval, more especially as they concerned the vibration of suspended objects of various sorts, a discussion which was set on foot originally by Mersenne himself. Roberval had

* *Corr.*, vol. iv., p. 445. † *Ibid.*, p. 441.



Queen Christine of Sweden
from the picture by Sebastien Bourdon, at Versailles.

recently issued a volume named *Aristarchus*,* and Mersenne, who dearly loved a controversy, would not allow Descartes to escape giving his criticism upon it. Criticisms were fair enough, but Descartes could not avoid the temptation to belittle Roberval's capacities as a geometrician, which was naturally irritating to one who had so considerable a reputation as he. His own geometry Descartes, with his usual self-confidence, would not allow that he had any desire to change, though he goes so far as to say that some points in it might be elucidated further.† In this dispute there was a certain "M. de Cavendische" involved; he was the Sir Charles Cavendish of whom we heard before, a brother of the Duke of Newcastle, and, like him, a royalist and exile. To him Descartes wrote very fully, and he was likewise in close connection both with Mersenne and with Roberval. The Duke (or as he then was, the Marquis) of Newcastle was also a correspondent of Descartes both while in Paris and in Antwerp.‡ Besides being a famous horseman, this nobleman was a patron of art and a lover of witty society. Aubrey tells us that he "was a great patron to Dr Gassendi and M. Des Cartes, as well as to Mr Hobbes, and that he had heard Mr Edmond Waller say that he had dined with them all three at the Marquis's table at Paris." § He consulted Descartes about a number of scientific phenomena, and did his best to assist in procuring him a pension, for which assistance, though it proved abortive, Descartes was very grateful.||

Descartes had been considerably annoyed by the publication of Regius' *Fundamenta Physicæ*, because, to

* In order not to commit himself to the views of Galileo too openly, this book was supposed to be taken from an old manuscript. *Corr.*, vol. iv., p. 392.

† *Corr.*, vol. iv., p. 394.

‡ While at Antwerp he hired the house of "the widow of a famous picture-drawer, Van Ruben," *i.e.*, Peter Paul Rubens (*v.* Life).

§ Aubrey's Letters, vol. ii., p. 602.

|| His Life is written by his wife, who was as remarkable as himself, *The Life of William Cavendish, Duke of Newcastle*, by Margaret, Duchess of Newcastle, reprinted 1872.

his mind, Regius had borrowed material from his own writings, and at the same time misrepresented their meaning. To make matters worse, there were those like Sorbière who tried to make out that his teaching had been anticipated by his former pupil. Between these troubles and his continual quarrel with Roberval, Descartes once more took a distaste to all his work, as he had often done before, and told the indefatigable Mersenne not to send him further matter, since he had decided neither to read nor write.* He was indeed involved in a very considerable private correspondence with Cavendish, Newcastle, Roberval, Pell, and others, which fully occupied his time. A fact that evidently caused him concern, too, was that his hair was becoming yet more grey, perhaps as the result of worry, and he had to betake himself for the first time to a wig, the benefit of which he pointed out to his friend the Abbé Picot, who was suffering from his eyes. Another friend whom he often consulted on the private affairs of his life, and who had a real regard for him (evinced amongst other ways in the dedication to him of a little book), was Hooghelande. He was apparently a man of great kindness of heart, a catholic of old family, who devoted himself to the free medical treatment of his poor neighbours.† The friends mentioned and others collected at Breda, where a university had been established in 1646, helped to make known the doctrines of Cartesianism, more especially as the curators, Rivet and Huygens (the second son of Zuytlichem), were entirely sympathetic. With Constantin Huygens, the elder brother, Descartes kept up a correspondence on scientific topics, and through him it probably was that he heard of the manufacture of spectacles (convex or concave as required), constructed in the manner which Descartes had himself proposed, though he considered, with great reason, that to carry it out would be most difficult; he thought, indeed, that the maker was

* *Corr.*, vol. iv., p. 553.

† Twice a day, "in slippers and nightcap," as Sorbière relates, he distributed drugs to these people.

probably a charlatan, professing what he could not carry through.* The spectacles of the day were naturally of the rudest kind. Huygens sent Descartes his *Momenta desultoria*, which contained verses addressed to him upon the *Ego cogito, ergo sum*—not, one would fancy, a specially inspiring topic for a poet. Later on he wrote more verses upon his physics, his portrait, etc., but he never went so far as to follow Mersenne's advice, and do for the Cartesian Physics what Lucretius did for Democritus, viz., put them into verse. There is an interesting letter from Descartes, presumably to Huygens, in reference to the construction of a spinet for his little daughter.†

Mersenne, ever busy in bringing together those who ought to be personally acquainted in the scientific world, did his best to effect a meeting between Descartes and Toricelli, at the request of the latter, who, however, passed away in 1647, before the introduction had been effected. The *Essays* had been sent him by Mersenne, but they were never read because of his lack of knowledge of the French language.

Chanut was now established at the Swedish Court, from which he wrote enthusiastic accounts of the young Queen Christine and her interest in learning. These accounts were readily accepted by Descartes, and he writes to the ambassador full of gratitude for the good words he had spoken of him to the Queen, which were, he says, a special solace to one who had been the subject of so much evil speaking. He maintained that he had no ambition to be known by those of exalted rank; but of this Queen he had heard such wonders that "the fact of her being Queen was one of the very least." From the Princess whom he knew he had come to believe that "those of high birth, whatever be their sex, do not require to be old to surpass in erudition and virtue other people"—the words of a true courtier.‡ Chanut sent for a copy of the *Meditations* on the Queen's behalf: Descartes, however, replied that he

* *Corr.*, vol. iv., p. 518. † *Ibid.*, p. 678.
‡ *Ibid.*, p. 536.

was afraid that pure philosophy would not interest her as morals might have done, but that to treat of the latter would bring yet more wrath upon his head, and already he was accused of atheism. Indeed, he felt that he should refrain from writing and study excepting for his own instruction.

However exaggerated his estimation of the Queen's powers may have been, she was certainly a most remarkable figure in history; and as she was destined to play no small part in Descartes' later life, some account of her will not be out of place. She was born in 1626, the daughter of Gustavus Adolphus and his somewhat feeble wife, a princess of Brandenburg. The child lost her father at the age of six, and, separated from her mother, she grew up, as directed by the wishes of her father, with the training of a man. Christine in her autobiography tells us that his directions were rigorously carried out, and that her own inclinations marvellously sustained his designs, for she had an invincible antipathy to all that women did and said.* Their dress she could not suffer, and consequently she wore no head-dress, took no care of her complexion or her figure; she could not bear long skirts, and besides short petticoats she wore flat shoes like those of men, which made her rather short figure look even shorter. A quarter of an hour sufficed for dressing, a comb and ribbon formed her coiffure, and in riding she could hardly have been distinguished from a man. Even the admiring Chanut considers that she carried the disregard of dress too far. Though she could not learn any sort of handiwork, she had a marvellous facility for languages, and studied, according to herself, six hours in the morning and as much at night. She slept little, drank and ate little, but, we are not surprised to learn, suffered all her lifetime from indigestion. Ten hours on horseback did not tire her, and to cold and heat she was indifferent; she was an excellent shot on horseback and on foot. It is not wonderful that her communications with women

* *Christine de Suède et le Cardinal Azzolino*, par le Baron de Bildt, 1899, chap. ix., p. 10.

were but slight, and that she left their company as soon as possible. She studied Greek and Latin as well as French, Spanish, Italian, and German, and not only devoured the classics, reading several pages of *Tacitus* daily, but interested herself also in the sciences. Apparently, however, her capacities were receptive rather than creative, and she could not make use of her acquisitions. She had, of course, a unique opportunity of learning history in a time when her armies were in the field and the praises of her father were sounded on every hand. The one gift denied her was that of good looks, and her voice was masculine in character; but to her these things ostensibly did not count. If Chanut's accounts were even partially true, perhaps we should not wonder at the fascination she exercised on those who were predisposed in her favour by her exalted position and great reputation.* She was said by him to have been affable and pensive, though when something vexed her she was able to inspire terror in those who surrounded her. She was brought up in the reformed Lutheran faith, and in the strictest orthodoxy; to this she nominally adhered until she adopted the Catholic religion. But she herself tells us that she began to have religious difficulties at the immature age of nine or ten, and when indiscreetly she expressed her doubts to her instructor, he scolded her violently and threatened that he would have her punished if she persisted in her doubts. The child promised, indeed, but told him that if anyone tried to whip her they would repent it; and this with so imperious an air that the unfortunate preceptor trembled! Chanut speaks of her love of virtue with the naïve admission that, though she placed virtue above all other goods, she did not long forget that she was Queen. And despite her so-called masculine virtues she was not long in learning that she was a young girl still, and had a woman's heart. Her love affairs were unfortunate, and misplaced affection may have caused her to become embittered. Later on accusations of light conduct were brought against her; but

* Baillet, vol. ii., p. 303.

though her conduct was, to say the least of it, most eccentric, we have no reason to deprive her of her reputation as a virtuous woman, especially as round a character such as hers gossip was sure to gather.* The youthful Queen, while she learned all that her preceptor could put into the receptive young mind, failed to learn the most important lesson of all, in what she calls her "excellent and royal education." She failed to learn that self-control which is necessary above all to a sovereign.

This marvellous young woman, the inheritor of such glorious traditions, was attracting men of learning round her court, and no wonder Descartes was dazzled when she evinced an interest in his affairs. Chanut wrote that all that he had heard through La Thuillerie was true, that she knew him by reputation, and would have no difficulty in grasping his principles if she had time to study them, since often after audiences of State she would plunge into the most serious discussions. She had, for instance, asked him his opinion as to whether love or hate were worse when used amiss, and Chanut's view being different from the Queen's, he obtained a copy of the *Meditations* to present to her, professing himself ready to confess himself deceived if Descartes' opinions confirmed her own. At once the philosopher rose to the bait, and wrote a dissertation on the subject of Love—what it was as a rational sentiment as well as a passion ; whether natural love would teach us to love God ; and which is most wrong, misguided love or misguided hate. A fuller exposition of his views was written to Chanut by Descartes, and sent in the February following, 1647.† As to the nature of love, he states that, to his mind, intellectual love must be united to the will. Love, through the will, unites itself to the desired object, and, if so united, "the movement of the will accompanying

* *Christine de Suède*, Baron de Bildt, p. 19. Philibert de la Mare in his *Mélanges historiques et litteraires* (MSS.) records various tales of light and foolish conduct.

† *Corr.*, vol. iv., p. 600.

the knowledge of its being a possession is its joy, or, when possession is lacking, its sorrow; the movement of the will which accompanies the knowledge which it has that it would be desirable to acquire its end, is its desire." All these movements of the will might pertain entirely to the soul as rational, but this reasonable love is often joined to the sensual, or the confused thought excited in the soul by some movement of the nerves which disposes to the higher sort of love. The two act, indeed, reciprocally on one another, though so different, just as our soul unites itself to a body, while having "the property of allowing each of its thoughts to associate itself with certain movements or dispositions of the body in such a way that the repetition of certain dispositions of either, causes a corresponding action in the other." Then comes the question of whether we can, by the light of nature, love the God who is so much above us. Is it only, as some say, by the mystery of the Incarnation that we can know and love God? Descartes is inclined to think not, but that we may love God by nature alone; though he astutely says he leaves the question of whether love is meritorious without grace to the theologians. "In this life it is," he tells us, "the most ravishing and useful passion we can have." We must think of God as a thinking Spirit, from which we may consider that our soul is an emanation. But we must not think that our power of reaching to Him may increase indefinitely, and that we may, so to speak, "become gods, *i.e.*, love the Divinity instead of God." We must remember that He comprehends all in His one thought, knows all, while not interfering with our free will. We are as nothing, while all things depend on Him. Such reflections take away all fear, and make us "only desire that God's will should be done." "The very idea of union with God suffices to rouse within us that heat around our hearts which causes a most violent passion to arise." We are not permitted to say we *love* those of a higher station than ourselves, Descartes goes on to say, because the idea of love may be supposed to bring about a sort of equality between

the participators in it; and yet this desire for union really is love, and this is the sentiment her correspondent certainly has for one who is so great a Queen. This love, says the courtier-like philosopher, is a very perfect love, to which death itself has no significance.

As was doubtless intended from the first, this dissertation was placed before Queen Christine, whose delight with it was great; and to Chanut she stated that she would be glad that her feelings of estimation should be conveyed to the writer.* At the same time she took the precaution of professing that she herself had no personal knowledge of the Passion, supremely interested though she was in its nature. Certain difficulties respecting Descartes' views regarding the infinitude of the world and of extension being also expressed by her, these were combined with others from Chanut respecting the subject formerly discussed, and sent to Holland. Descartes received the letter in a hotel in the Hague on his way to Paris; but in spite of this fact he made a point of writing at once to justify his orthodoxy, and bring forward other arguments to prove his case.

Through Chanut, Descartes also carried on communications with the Queen respecting certain criticisms which she had made regarding the magnitude which he ascribed to the universe, in which he proceeded to explain the distinction that he drew between its *indefiniteness* and its *infinitude*. The last, he says, could be known by God alone; limits, may indeed exist in His knowledge, but unknown to us. For Descartes, extension, of course, is everywhere alike, and we can conceive no void which has it not. Another question which had been put to him, and which might have been personally concerning the young Queen at the time, was that of why we love one person rather than another, regardless of our knowledge of their merits; Descartes proceeds to answer this question in his "clearest" way from the corporeal point of view—the spiritual he does not, he says, attempt to deal with in a letter. Objects which affect our senses, he tells her,

* Baillet, vol. ii., p. 310.

move, by means of nerves, certain portions of the brain, and cause a sort of crease, which becomes straight when the affecting body is removed, but which leaves the place more disposed to be affected even by a different sort of cause. Descartes tells that he himself in youth had loved a squinting little girl, and for long years after a squint disposed him to love, though reason latterly taught him that it was a fault. Therefore, he draws the wise and sane conclusion that men should not allow themselves to be carried away by passion without considering the merits of the individual who moves their feelings. Real love is spiritual as well as corporeal, and hence it is reciprocal.*

Of course Descartes soon arrived at direct communication with the Queen herself; after she had heard Freinshemius' oration *de Vero Bono*, she requested Chanut to inquire of Descartes his opinions on this subject; and it was in this way, as we shall see, that he forwarded to her his letters to Elisabeth on a similar subject. He points out to Christine the distinction between the sovereign good of the Christian as found in God, and that of the ancients who discovered it in this life: and then he distinguishes the good of men as men, or the perfection to which they may attain, and the individual's good, consisting in the will to do right, and the happiness thereby produced.† He also compares the ideals of Zeno and of Epicurus, or those of virtue and sensuous happiness. To Descartes, it is only in the exercise of our free will that real happiness can come; all happiness depends finally upon the soul, although it may have a bodily medium. The Queen was sincerely grateful to him for the pains he had taken on her behalf in making such matters clear, and begged Chanut to convey her thanks, and say that she was about to write with her own hands; it was, however, not for more than a year, (in December 1648), that he received a letter from his royal correspondent, and when it came, it was simply a well-expressed note of thanks. She had been occupied with public affairs until the conclusion of the peace of

* *Corr.*, vol. v., p. 58. † *Ibid.*, p. 82.

Munster (24th October 1648), and also with her favourite pastime, hunting; but she studied the little treatise on the Passions with great intentness, and on second perusal resolved to set her mind to comprehend the Cartesian system. Chanut tells Descartes how, in a journey to the mines, his young mistress gave herself up to reading for hours on a stretch, and struggled nobly to comprehend of the difficulties of his system.* When these nearly overcame her, she begged her historiographer Freinshemius to aid her in her task, as well as Chanut himself. Hence he jocosely remarks that one of the duties of his office was to master the Cartesian system. It was decided then that where difficulties occurred which none of the party could succeed in solving, Descartes himself was to be referred to. Descartes' response in February 1649 was enthusiastic. He expresses his astonishment at the excellent French in which the Queen had written. For it "our whole nation is indebted, and it seems to me that this Princess is created in the image of God in a greater degree than the rest of mankind, inasmuch as she can extend her attention to a greater number of occupations at the same time. For it is God alone whose Spirit never tires, and who is as exact in remembering the hairs of our head, and in caring for the minutest worm, as in moving the heavens and the stars."† All we can say is, that this exaggerated language regarding her whom he terms the incomparable Princess who had deigned to write to him and read his works, may perhaps be partly justified when we remember how Gustavus' daughter appeared to the world of her day, and more especially to the world of learning.

Descartes' pleasant intercourse with his correspondents of both sexes was soon, however, to be interrupted by less agreeable occupations. The head of the theological college at Leiden, named Revius, in collusion, it was supposed, with Descartes' old enemy Voetius, caused certain theses to be advanced against Cartesianism, and more especially against the *Medita-*

* *Corr.*, vol. v., p. 253. † *Ibid.*, vol. v., p. 290.

tions, which were characterised as atheistical. A professor of theology, who was likewise a pastor in the town, by name Triglandius, followed suit, and Descartes thought it wisest to write, in May 1647, to the curators of the university and town authorities, requesting that justice should be done to him.* Those concerned were summoned to appear; they made their defences, and Descartes was requested to abstain from taking further action in the matter. He, however, was far from satisfied with the explanations, and wrote an instant reply accompanied by a letter to the secretary. The rector of the university warned him that he might be condemned as a Jesuit in disguise, and here once more he appealed to the Prince of Orange through the French ambassador Servien, to whom he gave a full account of the whole affair. He reminded him that he had served in the field to combat the Inquisition in Spain, and surely, he said, he should not himself be subjected to an Inquisition of ministers in Holland. If the theologians of Paris approved of his writings, they surely could not be contrary to the Christian religion.

It would seem that the rector must have acted with considerable tact in smoothing matters over. The curators demanded that further disputations on Cartesianism should cease, and blamed Descartes' antagonists for misrepresenting his views: the wrath of these last fell on certain theologians supposed to sympathise with his opinions (Professors Heidanus and Heereboord), as by that time Descartes had left the country. His supporters were forbidden to speak further of their master; but they continued to write and to assert the merits of the new, as against the Aristotelian philosophy. The warfare, in which a Scotch professor Stuart took a considerable part against Descartes, consequently went on as it was bound to do in Descartes' time and after. If Descartes' supporters suffered, they at least were not

* This communication, which Baillet states to have been lost, has recently been found in the archives of the University of Leiden (*Corr.*, vol. v., p. 1).

silenced. Revius' *Considerations on the Cartesian Philosophy* were followed by a manifesto from Utrecht on the nature of the human mind by Descartes' old disciple Regius; and this he issued in anonymous form as a sort of poster, so that everyone might read it. Of course Descartes undertook a refutation, which was printed without his knowledge, in a form he did not like, as *Notæ in Programma.* This discussion went on for some time, but finally Descartes gave it up, considering it wisest to treat his late follower with cold civility and leave him otherwise alone. He had in his notes spoken strongly enough about the "absurd and impertinent" opinions of his antagonist: no word of his, unless what he derived from others, did he deem free from error.

It was in the middle of the Revius dispute, on 7th June 1647, that Descartes, who had decided to make another journey to France, left the Hague for Paris by way of Flushing. In Paris he lived with the friend he visited before, who had moved since his first visit from the Rue des Ecouffes to that of Géoffroy-l'ânier, where he had taken a house along with Madame Scarron de Mandiné, which was between the Seine and the Rue Saint Antoine.* Descartes had intended to proceed at once to Brittany, but he delayed in order to write a preface to the *Principles,* the translation of which into French had been completed. Of course he saw Mersenne and Mydorge, as also Clerselier, who had just recovered from a severe attack of gout, and who had been busy with the publication of the French edition of the *Meditations.* Curiously enough, Descartes made a particular request that copies should be sent to three of his nieces who had taken the veil.

Whenever the *Principles* were out of his hands, Descartes left for Brittany to arrange certain money affairs with his relatives there, taking Picot with him as a companion. From Brittany they went on to Poitou, and in returning by Touraine they paid a visit to a certain country gentleman, at whose house Picot appears to have made himself more agreeable than did Descartes,

* Baillet, vol. ii., p. 323.

who is said to have put in his first appearance at mid-day, and taken solitary walks in the Park. Possibly his hosts did not prove themselves congenial spirits. On returning to Paris in September they found Mersenne suffering from the stupidity of a surgeon who had, in bleeding him, cut an artery, besides which Mydorge, the mathematician, had rather suddenly died.

Friends had meantime been busy in endeavouring to procure a tangible expression of the esteem in which their distinguished countryman was held. Without allowing him to have any knowledge of the fact that representations were being made on his behalf, letters patent were issued on 6th September 1647, setting forth the fact that a pension had been granted him of three thousand livres, commencing in the year of issue.* Consequently, his affairs being apparently so satisfactorily arranged, Descartes and Picot set off for Egmond. Before leaving, however, Descartes saw young Blaise Pascal, who, being in Paris, desired to meet him. Pascal was in the middle of his experiments on the vacuum at Rouen, and the results of his labours were published later in the year, under the title of *Expériences nouvelles touchant le vide.* This publication was dedicated to his father, and a copy was duly sent to Descartes. Everyone knows of Galileo's attempt to explain the rise of the water in the common pump, and his pupil Torricelli's solution of the problem. It was Torricelli, of course, who first showed that the column of water ascends to a height such that its weight exactly balances the pressure of the atmosphere. This was followed by his experiments to show that the height to which a liquid would rise in an exhausted tube depended on the weight of the liquid, which did away with the current notion of nature's abhorrence of a vacuum, but which caused much controversy regarding the nature of the "Torricellian vacuum" left by the mercury in descending from the top of the closed tube. Torricelli affirmed that the column of mercury was

* Baillet, vol. ii., p. 327.

sustained by the pressure of the atmosphere, and varied with variations in that pressure, and his explanation of what we now call the barometer was borne out by certain experiments carried out by young Blaise Pascal, then living at Rouen. The crucial experiments were made by him and his brother-in-law Périer on the Puy-de-Dôme mountain in Auvergne in September 1648, with tubes filled with mercury: from these experiments it was clearly shown that the level of the mercury stood higher as the level of the place at which the experiment was made was lower. Others had naturally been interesting themselves in the matter, and notably amongst these, Petit the military engineer, Descartes, and Mersenne. An interesting fact in this connection is that Pascal and Descartes really met on the 23rd and 24th September 1647, as is related in a letter from Pascal's sister Jacqueline to her elder sister Madame Périer.* This letter tells of long talks on the nature of the vacuum, when Descartes put forward his theories of subtle matter, and the discussion had apparently become somewhat warm. Blaise Pascal was at this time far from well, and Descartes had after his wont given him some medical advice. In December 1647, Descartes writes to Mersenne respecting Pascal's treatise, and asks for the results of Mersenne's experiments with mercury.† In this letter he states that he had suggested to Pascal to experiment first at the bottom of a mountain and then at the top, and he sends Mersenne a graduated scale drawn on paper two and a half feet in length, in order that they might both experiment in different temperatures and winds. He had, indeed, already been experimenting on his own account, but was awaiting a complete treatise on the subject by Pascal, which, though promised, never really appeared. The interesting point is that Descartes had clearly suggested the Puy-de-Dôme experiment to Pascal probably in his Paris interview. It is also interesting that he so com-

* *Lettres, Opuscules, et Memoires de Madame Périer et de Jacqueline, sœur de Pascal*, publiée par P. Faugère, 1845.

† *Corr.*, vol. v., p. 99.

pletely recognised the importance of these experiments and their bearings, though of course he was not alone in his speculation on this subject. Nature's abhorrence of a vacuum did not fit in with Descartes' views, any more than did his views of subtle matter fit in with Pascal's. To Descartes, with his mathematical conception of matter, extension in its three dimensions was of its essence. Body to him was composed of figure, size, etc., and to conceive of anything in nature devoid of these (a vacuum, for instance) was to conceive an absurdity. Unless men could make use of scientific methods their knowledge to him was useless, being neither clear nor yet distinct.*

Descartes arrived in Holland in September, in company with the Abbé Picot, who spent several months with him at Egmond. According to Baillet, they had made up their minds to enjoy the sweets of quietude if not of idleness, in true philosophic mode, far from the sounds and agitations of the world, and with no other company but their own. We must now relate

* In the *Revue Philosophique* (December 1887 and January 1888), M. Adam gives an interesting account of the relations between Descartes and Pascal in this matter. It was Mersenne who had arranged the interview between the two on 23rd and 24th September 1647. Jacqueline Pascal narrates that the first question put concerned the contents of a syringe, whose piston is withdrawn while the end is closed. Descartes replied that it was filled with subtle matter. Pascal thought it possible, but Roberval, who was present, broke in with some heat, and Descartes replied with acrimony. The question was firstly, whether the tube of mercury was really empty at the top as it appeared to be, and secondly, why the mercury remained in this position, and it was the first point that was debated so passionately as a philosophic question; the latter was regarded simply as a scientific problem, which could be resolved by experiment, and which was hence less interesting: in fact, on this point Descartes and Pascal were at one. On the other they differed, for to Descartes an empty space was inconceivable, while to Pascal, to name an empty space, matter, is to make matter something different from what it was before, viz., that which offers no resistance. That is to say, to him space is just space, of which no more could be said, however the philosopher might mock. M. Adam considers Descartes to have in some respect anticipated Torricelli as indicated by a letter written in June 1631, but he states his conclusion as the result of a metaphysical theory which would not appeal to Pascal.

something of Descartes' communications with his other royal correspondent.

Elisabeth was at this time (1647) in Berlin, but she hoped to return to Holland soon, and this was one reason which induced Descartes to hasten his return; otherwise, owing to his Leiden troubles, he might have been disposed to remain in France. The Princess was his confidante and constant sympathiser in all these difficulties. Her indignation was great with Triglandius, Adam Stuart the Scotchman, and the rest of his opponents, and she urged him not to desert Holland on their account. For herself she was happy at Krossen, which she describes as pleasant and fertile, though gnats or some such insect abounded, owing, it was believed, to the overflowing of the river Oder. The climate otherwise was good, and, were it not for their dirt, the people ought, she says, to be healthy; but as for herself, "she had only her books to keep her from utter dullness and stupidity."* Descartes was faithful in sending his own treatise to his royal correspondent. But he was not perfectly happy in the conclusion to which he had come, that his two royal disciples so remarkably at one in sympathies, were eminently suited to have intercourse one with the other. So few were worthy of the Queen's friendship, that it would only be right, he not very astutely tells the Princess, that she should ally herself with such a one. He had learned, he says, "how easily those of high birth could surpass all others"—and indeed there seemed some justification for his deduction in the cases in point. In any event, however, it was hardly wise to relate to Elisabeth that the Queen (having been at the College of Upsala, and having deemed a discourse on the Sovereign Good which she had demanded of the professor of rhetoric unsatisfactory) had requested Chanut to procure his views, and that he had forwarded to her through him a copy of the letters written to Elisabeth on the *Vita Beata* of Seneca. Curiously enough, the only apology which he conceived to be necessary in relating

* *Corr.*, vol. v., p. 49.

the tale was his apology to the Queen for sending her letters written to another. Descartes meant to play a highly diplomatic game. He meant to get into direct communication with the Queen, interest her in the subject discussed, and find occasion for effecting an acquaintance between her and the Princess, under the impression that the results to the latter might be beneficial. His manner of setting about the matter was not, however, judicious.

Elisabeth was very anxious that Descartes should produce a meditated treatise on Erudition, but he dreaded drawing on himself the further animadversion of the Schoolmen ; also he was now engaged (during the winter of 1647-48) in studying the nature and function of man and other animals, besides making various experiments. He meant this season to be one of rest and quiet, since next winter might probably be spent in Paris, where there were evidences that his merits were not unappreciated, and that his presence might be demanded. At the same time, true courtier as he was, he declares his preference for the neighbourhood of that Princess, for whom he had so profound and real a respect.

CHAPTER XIII

DESCARTES' LATER LIFE AND WRITINGS, 1648-1649

DESCARTES made yet another journey to Paris in May 1648—a journey which he regarded as taken practically at the command of the king, and one which deprived him, as he writes to Chanut, of valuable leisure for cultivating his mind, and only gave him the satisfaction of doing what was difficult whether he cared for it or not. Having gone to Paris under pressure, he naturally expected, while there, attention and consideration; to understand how he got neither, we must take into consideration the political state of France about this date.

The great Richelieu had passed away in the end of 1642, and his master, Louis XIII., followed him a few months later, leaving the crown to his four-year-old son. The Parlement of France, despite the will of her late husband and his appointed Council of Regency, handed over the government of the country to Anne of Austria; and she selected Mazarin, Richelieu's chief minister, as him to whom she could entrust the carrying out of her will. Mazarin did indeed carry on Richelieu's work, but in a fashion very different from that of his late chief. His manner was tactful and conciliatory to obsequiousness; of diplomacy he was a master; but beneath a smooth exterior he hid a callous nature. Besides this, he was suspected as a foreigner, and as one whose meanness amounted to avariciousness, in spite of the prodigality of his personal display. Consequently he was hated as few men have been hated before or since,

and this hatred was manifested most of all at the outbreak of the Fronde. It was in the beginning of this very year, 1648, that an ill-advised imposition of an octroi duty gave the members of the Parlement an opportunity of putting forward their claims. The particular point was settled, but the Parlement appointed a committee to take into consideration the whole question of reform, which included measures so important as that of the establishment of the principle of the *Habeas Corpus*. Mazarin to all appearances yielded to the popular feeling, but he was only waiting his chance, for presently Broussel, the leader of the agitation, was arrested, an event which took place during Descartes' visit to Paris. The whole fury of the mob then burst upon the hated minister. Broussel was released, but, if defeated for the moment, Mazarin was not crushed; he counted on having an army at his command directly the Peace of Westphalia was concluded. To avoid the tumult, the court withdrew from Paris on the 13th of September, and the town became a scene of uproar. Condé declared for the Parlement, and on October 24th, when the court returned to Paris, an edict was published declaring the demands of the committee accepted. To obtain obedience to a minister during the king's minority was no easy matter, even in a time when local authorities had been ruthlessly shorn of their power, and when the endeavour was to make the will of the king or his representative alone supreme. This gave strength to the agitation of the Fronde and to the Parlement, which last was far from being such a representative assembly as the corresponding body in England, where the same battle was being fought, but in very different fashion. In France the *taille* was reduced, intendants abolished, and, above all, control of taxation was conceded, as also the principle of the *Habeas Corpus*; but the body that gained the victory was not capable of profiting by its gain. The struggle became one between king and nobles, with the immediate object of overthrowing a detested minister. The Peace of Ruel in 1649 was a peace only in name,

and even in 1651, after Descartes' death, though Mazarin took flight, the warfare did not cease.

Hardly could a more unfortunate time for a visit to Paris have been chosen than that selected by Descartes. He came, in his belief, by command of the king, having in March received officially sealed dispatches which contained, along with many compliments, the offer of a pension. What relation this last offer bore to that of the September previous, we cannot tell, for Mazarin was undoubtedly neither interested in letters, nor generous with money. In any case this last gift was discovered not to be worth the paper on which it was inscribed.

Descartes decided to leave Holland in May, and take up his abode more in the world than on his previous visits, *i.e.*, close to the Rue St Honoré, and conveniently near the Théatins, with whom he was in the habit of hearing mass. Picot undertook to find apartments for him, and he bargained most particularly for his food to be served in private, or else with people that he liked. One room, Descartes tells Picot, would serve his purpose, were it well furnished and good enough to receive his guests; but there must be a little place wherein to study, and some accommodation for his valet. Horses and carriage would, he writes to him, be unnecessary, since he could always take a chair in passing through the streets. But clearly Descartes had in view the making of his appearance in the capital in a manner befitting his rank and quality, for to such outside considerations we have every reason to think he was by no means insensible. In this connection Baillet incidentally tells us much of the *ménage* of the great man, which is not without interest in these later days.* His house, he says, was well furnished with all that did not interfere in any way with his studies, his household was not numerous but quite sufficient and well selected, and he did not omit to see that the members of it were well provided for, and that they were suitably established on quitting his service. Hence that service

* Baillet, vol. ii., p. 456.

was popular, and applicants were ever anxious to procure situations under such happy auspices. Before starting for Paris, Descartes wrote a letter to the Abbé Picot, who had been disappointed in his cook Louise, which presents a homely touch, revealing to us something of the nature of the man. With servants, he says, there are always risks of infidelity when opportunity for such is given, and therefore one should be careful not to give that opportunity, but try to look after one's affairs oneself whether or not there are those whose business it is to do this for us. This letter was written in respect of a valet whom he sent to Paris to serve Picot, and to whom he confided his little dog, whom he called M. Grat, along with a bitch of the same breed, so that the Abbé might carry on the race.*

Despite all promises and preparations, the visit to Paris was as disappointing as it well could be. The struggle between Mazarin and the Parlement was so engrossing that no one had any thought of the stranger or his wants—no one, that is, except his own particular friends. His first idea was to fly, since his very presence seemed a reproach to those who had invited him to come, but he was finally induced to remain for three months, part of which may have been occupied in visiting his relations in the provinces, though of this we have no knowledge. There was no question, of course, of visiting the court, but other friends were hospitable, and Picot insisted on his friend once more taking up his abode in his house. Descartes' letters are almost ludicrous in the naïvety in which he expresses his disappointment. To Chanut he writes (in answer to a letter in which he tells of the books taken with her to

* We know also of his interest in the education of his valet Gillot, whose name so often appears in his correspondence, and who could have gone to teach the mathematics of his master in Paris, but that his relatives, being zealous Huguenots, feared his becoming Catholic. When a question arose about his going to Sainte Croix, Descartes anxiously inquires of Mersenne whether he will be treated not only as a valet, but also as a companion of those for whom he worked, and requests that he may not be worried with too much "working at figures" requiring patience more than he possessed.

the chase by his intellectual Queen, and the preference given to the dissertation on the "Sovereign Good") to say that the air of Paris "disposed him to conceive chimeras instead of philosophic thought," and that so much falsity was everywhere abounding that he longed once more for the "innocence of the desert."* In a later letter he tells him that though he would not reproach those who had desired his presence, he "would regard them as friends who had bidden him to dine with them, and when he arrived he found their kitchen in disorder and their saucepans upset." "No other voyage would he take on promises of the kind, even if inscribed on parchment": the very letters sent him were not paid for, and the result was that he "appeared to have gone to Paris to purchase a parchment of the dearest and most useless kind that had ever passed through his hands": no one, he says, wished to know more of him than his face: apparently they only wanted to have him in France as they might an "elephant or a panther, because of the strangeness of its form."

One good result, however, was probably accomplished, in that the young Abbé d'Estrées effected a reconciliation between Descartes and Gassendi, as is told in Sorbière's account of Gassendi's life.† This young man was a recognised patron of letters, and the dissension between two philosophers distressed him greatly. He therefore told both of his plan of a reconciliation, invited them to a splendid repast, to which he also asked many distinguished savants, including Mersenne, Roberval, and others. Unfortunately, these excellent designs were almost thwarted at the last by Gassendi's sudden indisposition, but, nothing daunted, the Abbé took the company after the feast to his house, and in a room full of distinguished guests the two former opponents openly embraced. As soon as Gassendi was able, he paid Descartes a visit; the visit was returned, and the reconciliation was completed, though Sorbière, to Baillet's indignation, asserts that it was not kept

* *Corr.*, vol. v., p. 183.

† Petri Gassendi, Opera S. Sorberii, 1658.

inviolate on the part of Descartes. If the date of the reconciliation were really 1648, as seems probable enough (though it is not certain), this must indeed have been a libel, as is maintained by Baillet.*

However successful he was in regard to his relationship with Gassendi, Descartes did not have equally good fortune in respect of his relations to Roberval. The natures of these two men appear to have been altogether opposite. Roberval's quick temper did not suit Descartes' almost Teutonic characteristics, and differences in outlook and temperament seemed to imply differences of a more serious kind. In spite of the state of the political world, there were still assemblies of scientific men at Picot's and Mersenne's houses, where the two were forced to meet, and the subject of discussion was often the nature of the vacuum, which was the main point on which they differed. According to Baillet, on one occasion, at the house of someone of importance, Roberval was more domineering than his wont, speaking as a master might to his scholars, and Descartes stated that he wished to carry on such disputations in writing. This gave Roberval the opportunity of asserting himself to have gained a victory over his opponent. After the manner of the time, Descartes' followers took up the cudgels in his behalf, and a lively dispute followed, in which Roberval is said to have adhered to his decision not to commit himself to paper. The dispute was continued long after Descartes' death.

It was about this time that Descartes carried on a long and interesting correspondence with one whom Baillet calls an "unknown man of eminence," but who appears to have been the great Arnauld of Port Royal, who had written the "Objections" to the *Meditations*. Arnauld writes to express his satisfaction at discovering that Descartes' views of body and soul corresponded with those of Augustine.† But he has difficulty in accepting Descartes' statement that the soul never ceases to think, inasmuch as it is a thinking substance,

* *Corr.*, vol. v., p. 201. † *Ibid.*, vol. v., p. 185.

as also his explanation of the fact that we do not recollect our thought while in our mother's womb. Descartes' view was that, "while the soul is united to the body, to recollect our thought, there must be some traces imprinted on the brain, on applying itself to which the soul remembers." For Arnauld, again, memory could not solely be the effect of an impression on the brain, for he believed that in addition there is a spiritual memory which acts altogether independently of body. He also goes on to criticise Descartes' conception of time when applied to what is spiritual: to him the conception of "endurance as successive creation does not apply to that which is Divine, since it is permanent and immediate": or, as we should say, the categories of time do not apply to the spiritual world. Though this letter was anonymous, Descartes could have had little difficulty in guessing who his correspondent was, and he replies with the deference that he always paid to one for whom he had as great an esteem as he had for Arnauld, who, without having broken with the Church, had dared to assert the claim of reason. Differ from Descartes as he might on minor points, Arnauld's *Art of Thinking* was largely inspired, as we cannot fail to see, by the Cartesian Method.

Descartes' reply was mainly directed towards defending his doctrine respecting memory. He points out that "the child's soul, *e.g.*, has never had pure conceptions, but only confused sensations which always leave their imprints on the brain, remaining there through life, though they are not sufficient to cause us to understand that those coming later on are similar to those experienced in our mother's womb, or to remember them," for this depends on reflection of the understanding of which we have not the power before our birth. "We must," he says, "think always, since thought is the essence of the soul, and in nowise separable from it, just as extension is of the body." Arnauld's view of time is also criticised as being scholastic in its nature, for Descartes' belief was that

"we cannot say of the human spirit as of the Divine that it is entire in its immediacy, since we are conscious of a succession in our thoughts which we cannot allow respecting the thoughts of God."* Arnauld, however, still maintains his point about the memory, while the view that thought is the essence of mind always presented difficulties to one who adopted the scholastic belief that mind is a substance and that thought is its mode. "If we always thought," he says, "we ought also to have always a knowledge of our thoughts, which is contrary to our experience, *e.g.*, in sleep." Why, again, do we not *know* when our mind has the impulse to conduct the animal spirits into the nerves, and to cause our members to move, since there is nothing in our mind of which we may not have knowledge? "The operation is apparently carried on without our thought or perception, and, indeed," Arnauld adds, "it is very difficult to understand how in any case an incorporeal thing can move a corporeal." Descartes acknowledges that it is true, as Arnauld says, "that we do not know the manner in which our soul sends the animal spirits into the nerves, since this does not depend on the soul alone, but on its union with body; yet we have knowledge of all this action by which the soul moves the nerves, inasmuch as such an action is in the soul: for it is no other thing than the inclination of its will to a certain movement." "Incorporeal mind," he says, "can move body,"—of this we are sure, though we cannot tell why, nor have we any analogy to judge from: "if we try to explain this fact we only obscure the issue."†

This very striking correspondence brings out Descartes' psychological views very clearly. For him the relationship between mind and body is often expressed in a way which seems obscure and incomprehensible, but it is interesting to see that he himself recognises the difficulty remaining after every explanation had been made, and confesses its insolubility. To Descartes, thought characterised the region of spirit just as exten-

* *Corr.*, vol. v., p. 153. † *Ibid.*, vol. v., p. 222.

sion characterised the world of things. God *could* indeed create a mountain without a valley, but He has given man a mind which cannot conceive the inconceivable. Thought is, by him, accorded the highest place, since he recognises that we cannot rise beyond it, and that to question its finding is a barren and futile task.

We learn much of Descartes' life from his continuous correspondence with the royal Princess in Prussia. The unfortunate lady had been suffering in health, partly, it would seem, from a nerve having accidentally been cut by a rash surgeon in bleeding her. There had been some thought of Elisabeth's accompanying Queen Christine's mother, Marie-Eléonore of Brandenburg, who had been staying with her nephew, the Elector, at Brandenburg, on her return to Sweden. Elisabeth's spirits had been raised by the idea of the voyage, which was, however, dependent on the consent of all her relatives, and on a sufficiency of money being supplied; this last unfortunately was lacking when the time for the Queen's departure had arrived. The failure of the scheme was a deep disappointment to the Princess, who had set her heart on doing what she could in the interest of her unhappy House. It meant, too, that Descartes' fondest scheme of bringing his two royal friends into relationship with one another, had failed. The plan, indeed, might, after all, have been carried through, had not young Queen Christine changed her mind, on the score ostensibly that she did not wish persons of a religion different from her own to approach her presence closely.* As this reason did not seem a very likely one (Descartes, a Catholic, was subsequently summoned to Christine's court, and she was soon herself to change her faith), it rather appeared as though a deliberate rebuff to Elisabeth were intended. The latter, indeed, felt it to be such, though she tried to console herself in reflecting that by her voyage she might have lost health and rest, besides suffering much from a "brutal nation." Had the truth been known, its Queen most probably desired no rival star to shine beside her own. Things

* *Corr.*, vol. v., p. 225.

in England were coming to a crisis, and the outlook for the Stuart race was melancholy enough without any further insult being added, and Descartes could only hope that it was not the Queen, but some other person, who in this matter was at fault. He, too, had been suffering rebuffs in France, and was glad to have returned from a futile errand: he pointed out that if the Princess compared her lot with that of other royalties in Europe, she would find herself as a mariner within the port compared to those tempest-tossed at sea. And, ever ready comforter, he not only provides mental consolation, but also adds a simple remedy for an irritation caused by a strange dust which had descended from the trees upon the passers-by, including Elisabeth herself.

Descartes was actually in Nôtre Dame when the Te Deum was being sung for the victory of Condé at Lens, and when Broussel, the popular agitator, was arrested, an arrest which was followed by a condition of absolute and unquenchable disorder. All the pent-up hatred of Mazarin burst forth. Barricades were raised, as they have so often been raised in Paris since, and the crowd insisted on Broussel's liberation. No wonder that, under these circumstances, Descartes was thankful to make his escape from such a scene of turmoil. His only grief in quitting the city was that he had to leave behind him his almost lifelong friend, Mersenne, ill. All spring he had been an invalid, and just now the illness had become more serious. When Descartes completed the journey by Boulogne, Rotterdam, and Leiden to Amsterdam, his first duty was to write and inquire about the health of the much-loved Father. Mersenne passed away on the 1st of September, after a time of intense suffering from an abscess which Gassendi and the physicians wrongly diagnosed, and which, when operated on, caused his death. His characteristic injunction to his attendants was to try by *post-mortem* examination to find the cause of death, thereby to be the better able to assist other sufferers. The loss of this excellent friend was an irreparable one to Des-

cartes, who survived him for comparatively so short a time. The two had corresponded most regularly for many long years, had discussed every sort of subject of joint interest, and had many common friends. Mersenne had a wonderful power, as Baillet says, of propounding interesting questions; but his real and outstanding talent, beyond his scientific interests, was social. He had the capacity, given comparatively to few, of drawing men together, getting from each what he had to give, and by judicious questioning, causing matters to be discussed and solved, which otherwise might have been set aside. He was not without his weaknesses, and one of these was the love of seeing great men dispute amongst themselves. But in all his commerce with learned men, he probably persuaded himself that his object was the better elucidation of the truth. And his foibles could not have been very serious, for he retained the friendship of very many of his contemporaries, and his home was the common meeting-ground of all strangers of distinction. He spared no trouble in bringing them into association with those with whom he considered they ought to be acquainted. To Descartes, Mersenne was always loyal despite temptations to be otherwise, and he was one of the first to appreciate his worth.* After Mersenne's death, Descartes tried to recover his nineteen years' correspondence through Picot, but in some way Roberval had forestalled him, and secured part of the letters, which he refused, Baillet tells us, to return even to Clerselier, when he wished to compare them with Descartes' notes after the latter's death. In the end the matter was, of course, put right.

Descartes' attention was now becoming greatly occupied with the young Queen of Sweden and her doings, for the Peace just concluded allowed her to turn

* Hobbes says that Mersenne's cell was preferable to all the schools of philosophy. As Leslie Stephen points out in his biography of Hobbes, Mersenne rendered valuable service to the little côterie of scientific men in a day when no scientific journals or societies existed. He made each aware of what the others were about.

her attention to philosophical questions, and to study the French philosopher's writings more particularly and completely. Chanut doubtless did all in his power to further this inclination. He writes in December 1648 that he "had the honour two months before to accompany the Queen on a journey to the silver and copper mines. In her leisure time in travelling she devoted herself entirely to her books. I carried with me your *Principles of Philosophy.* I read her the Preface. She opened the book at various parts, and remained very thoughtful for several days. I knew what made her so, and when I ventured to say that it appeared to me that she was in hesitation between the desire to understand this philosophy and fear of the difficulties she would have in acquiring it, she confessed that I had guessed rightly." Chanut's advice was to request Freinshemius, who assisted her, to make a study of the *Principles*, so that she might have some help in her reading, and this she did on condition that Chanut also lent his aid. We cannot but admire Chanut's diplomacy in all his dealings with Descartes and his mistress, for his real object was to interest the Queen in the philosopher and his work, and this had been most successfully accomplished.

Another correspondence at this time was with the English Henry More, the Cambridge Platonist. More's gentle, dreamy character and his ever-growing immersion in mysticism or theosophy was not likely to appeal, perhaps, to the clear vision of the propounder of Cartesianism. He was one of those who lived in an atmosphere of spiritual exaltation from which it was difficult to come down to the affairs of ordinary life. He writes in this pleasing fashion of the marvellous beauty he had found in Descartes' works, which seemed to be so exactly in conformity with his understanding that "they were as dear to him as though in some way he were their author." Still there were certain points which he could not grasp, and respecting which he required assistance. "Matter or body," he thought, had been by Descartes "defined in too general a way,

for it seems clear that not only is God extended but even the angels and everything that is self-existent, since extension is only limited as is the absolute essence of things"; but it does not follow for that reason that spiritual beings are body.* In More's view extension is different from body, which must be defined as knowable through touch, and which (unlike the Divine nature) is also impenetrable. He objected likewise to its being said that a void could not be brought about even by God, since it would imply contradiction, and also to Descartes' opinion that indivisible atoms are non-existent. More holds that God could keep asunder the sides of a vase empty of matter; in such a case divine *extension* as distinguished from matter would fill up the space. "To say that matter alone is extended is a false principle."

Descartes of course demurred to More's definition of extended substance, or rather to what More calls sensible substance, regarding it as in relation to our senses and "thus explaining a property and not the entire bodily essence, which is independent of man's presence and of our senses." The capacity for being touched is not, he says, "the veritable and essential distinction that is found in extension," any more than the capacity for laughter and not the possession of reason is the veritable and essential distinction of man. "Touch and impenetrability have relation to the individual parts, and presuppose in our mind the idea of a divided body, instead of which we may very well conceive of a body as one which is continuous and indefinite, in which we regard extension only." "In a sense, God is extended since He is everywhere," but the extension is not a true extension, or what we conceive of as falling within the imagination, but is a concept which pertains to the intellect alone. God and the angels might be in the same place at the same time, and therefore they are not, properly speaking, extended. "Extension proper is in things which fall within the imagination." Then Descartes goes on to argue that as two things cannot

* *Corr.*, vol. v., p. 238.

occupy the same space, and as all extension must be body, therefore there can be no void: the walls of an absolutely empty vessel, as he frequently says, *must* come together. Indivisible and yet extended atoms are likewise a contradiction. And finally, he assures his correspondent that his views on extension are absolutely essential to his system of physics, since no body exists which is not sensible. The correspondence did not end here, for More replied at great length. In fact, Descartes' "clear and distinct" manner of regarding that which is extended as real and corporeal did not commend itself to the Neo-Platonist, in whose view space (or extension as well as time pertain to God.

What really stirred More chiefly, however, in reference to Descartes' teaching, was his doctrine of the automatism of brutes, which "barbarous sentiment" took away life and feeling from all the lower animals, making them into mere machines. We know the arguments this gentle, sensitive soul would bring against a doctrine which he hated with all his heart. If the immortality of the lower creation is the alternative, he asked, why not grant to brutes what Plato and the ancients did not withhold? Descartes, on the other hand, declares that we cannot make a greater mistake than to imagine that brutes think and have souls like ours. There is, he says, a mechanical movement, no doubt, "dependent only on the animal spirits and the configuration of the particles, or what may be called a corporeal soul, besides which there is an incorporeal principle pertaining to the spirit or soul"; and after much investigation, he had come clearly to the conclusion that the brute creation issues from the first principle only, or is mechanical in nature. To him the actions of the brute, though apparently intelligible, were entirely explicable from this point of view. However intelligent its actions might seem, he says, no lower animal could use a true language or indicate thought otherwise than by a natural movement; and this all men could do, even were it by signs and not by speech.

The latter portion of one of More's later letters is

occupied mainly in the criticism of the *Dioptric*, but to it Descartes never replied any more than to another, written in October 1649. Death cut his life short before he had even sent the reply he intended to the first; only the notes of his intended letter were found amongst his papers, but its subject-matter much resembled the other.* Descartes' last words to More are that "nothing removes us further from the pathway to truth than to establish certain things as true of which no positive reason, but our will alone, persuades us." Possibly with some reason Descartes thought his correspondent imagined certain things (such as corporeal angels), the notion of which pleased him, and thereby closed the true road to truth. The interest of the correspondence arises largely from the fact that it brings us so nearly to the close of the great philosopher's life, and shows us the nature of his studies even to the end.

A pleasant evidence was given that Descartes' mind was not entirely absorbed in speculation, to the neglect of the affairs of his less fortunate brethren, in the fact that in a letter, directed very probably to Huygens, he solicits his aid on behalf of a poor peasant in his neighbourhood (he declares that he associates only with peasants), who had killed a man under circumstances of great provocation, and for whom he desired the intervention of the Prince of Orange. The murdered man was the peasant's stepfather, who had treated his mother outrageously and threatened to murder her son. Descartes in his letter seems to wish to justify his very natural feelings of pity, and yet to show that he was not insensible to the fact that crime at all times should be rigorously dealt with.

During the year 1649, he was safely established in his retreat in North Holland, and there, as he tells Picot, he dreamt away his time in as great peace as he had ever enjoyed, while dispeace and commotion reigned elsewhere. The year was certainly a notable one historically, and especially as regarded the fortunes of the Palatine family. The Peace of Westphalia restored a portion of

* *Corr.*, vol. v., p. 402.

his estates to Elisabeth's elder brother, Charles Louis, and the rest went to the Duke of Bavaria. Then there came the tragic event of January 30th, 1649, in England, when the Princess Elisabeth lost her much-loved uncle. It was not till five days later that the news reached the Hague, where were the Prince of Wales, Princess Mary (wife of the Prince of Orange), and the Queen of Bohemia, Charles I.'s sister, with two of her daughters. One may imagine the grief and indignation of these royal personages when the messenger arrived, giving tidings of this, the final tragedy of their House. Descartes wrote to Elisabeth, who had been seriously ill a little while before, after hearing the sad news. He trusted that all she had passed through would help her to sustain this new yet more poignant grief, and tells her that she must remember that there was something glorious in its violence. "For there is great glory in dying when one is universally mourned, praised and regretted by all who have human feeling. And it is certain that without this proof the clemency and other virtues of the king lately dead would not have been so much noticed or esteemed as they are and will be in the future by all those who read his history. I am certain that his conscience gave him more satisfaction during the last moments of his life than indignation, the only passion that is said to have been noticed in him, caused him vexation." * As to the pain, Descartes says he does not take it into account, for it would be short compared with fever, or any other of the maladies which nature usually makes use of in taking away man's life. One trusts that Elisabeth found some little comfort in these reflections. Her correspondent proceeds to tell her of what was interesting him greatly, the fact of his communications with the Queen of Sweden, though he had to confess that nothing had come to him which had any bearing on the Princess's future; for this he could only suggest the rather far-fetched reason that those concerned in the establishment of the Peace might feel a certain embarrassment in writing

* *Corr.*, vol. v., p. 282.

of one who had not profited by it. Descartes himself was deeply interested in the result of the political negotiations now proceeding, and he gives sensible advice as to Charles Louis' acceptance of the offered terms, since the "least part of the Palatinate is better than the whole Empire of Tartary." He had, indeed, a strangely practical vein running through his character, and his advice was eminently sane, without, perhaps, being specially remarkable. "For myself, who am not attached to any special place of dwelling, I should find no difficulty in exchanging for that country these provinces or even France, if I could there find as assured a resting-place: but there is no place in the world so rude and so distasteful that I should not esteem myself happy to pass the rest of my days within it, if your Highness were only there, and I were able to render her some service." * This, we may believe, was the expression of the real man, and not the simple courtier. He had a true love and reverence for the unfortunate daughter of an exiled House.

Meantime, the correspondence with the Court of Sweden was also being carried on. In the extravagant language of the time Descartes tells Chanut that it seems to him that this Princess is different from ordinary mortals and that from her exalted station she can grapple with matters more numerous and more varied than any that can be attempted by the rest of mankind. Truth to say, the extraordinary energy of the Queen in every sort and kind of occupation, whether in search of pleasure or learning, lent some colour to this statement. In philosophy, Descartes felt that he was giving her a hard task enough, but, "inasmuch as her mind is capable of achievement, and that all these truths of physics are a portion of the foundations of the highest and most perfect morals, I dare to hope that she will have the satisfaction of becoming acquainted with them." And to clear the way Descartes gives directions about the reading of his work, explaining what might be omitted, and how much could be deduced from what was given.

* *Corr.*, vol. v., p. 285.

With this letter was another to the Queen herself, and if his language to Chanut was strong, this was certainly much more emphatic: "Had a letter come to me from heaven, and had I seen it descending from the clouds, I should not have been more surprised, and could not have received it with greater respect and veneration than that with which I received the letter it has pleased your Majesty to write," and he protests that there is nothing which the Queen could command him to perform, however difficult, which he would not be ready at least to try to execute.*

Just about the same time as these letters were written, another was sent by Chanut, dated 27th February, inviting Descartes to come to Sweden; it did not, however, reach him till nearly a month later, and in the interval Christine became impatient, so that Chanut was directed to write once more in March urging Descartes in the strongest terms he could to take the journey to Sweden. An admiral named Flemming was ordered to convey him in his ship; but as it turned out, Flemming arrived before the letter, and on visiting Descartes he discovered that he knew nothing of his mission. Yet another letter was written by Chanut later on in March, to tell him that the Queen would like to see him in the month of April, in order that he might return to Egmond the winter following, supposing the climate of Sweden proved too rude. Descartes himself wrote in the end of March two letters to Chanut, one of which was to be shown to the Queen. In this last he says that the honour of being summoned to the Queen was so great that he could not do otherwise than obey; but he felt that a short tour in summer would be unsatisfactory to her Majesty, and that it would be more agreeable to her were he to arrange to pass the winter at Stockholm. After twenty years of solitude, and being no longer young, he wished, he says, to save himself from unnecessary fatigue, and a summer voyage would be safest and best in every way. Chanut had already offered Descartes his house, and this offer, he

* *Corr.*, vol. v., p. 294.

felt, could not be refused. The covering letter is, however, in a different strain. The prospect of the journey was, he says, a difficult one. Could he hope to be of use to the Queen, he would do more for her than this; "but experience had taught him that even amongst those of mind and love of learning above the common, there were few who had the leisure to enter into his thoughts; and how could he expect this from a Queen with an infinitude of other occupations?" And when his system was once mastered, it was apt to appear so simple, and so much in conformity with common sense, that men ceased to wonder at, or consequently to admire, it. "The knowledge of truth is to the soul like health; when we possess it we do not think about it."* "Fortune had," Descartes goes on, "proved herself jealous that I had expected nothing of her, and that I had thus given her no power over me, for she never failed to disoblige me when she could," as she had shown in his three visits to France. This treatment was naturally not to be anticipated in Sweden, but thieves might be met with on the way, or shipwreck incurred at sea. Still all this would not, he says, detain him, "did the Queen actually desire to examine his views and take the necessary time to do so; but if it be only curiosity of an ephemeral kind that influences her, I ask permission to beg, without displeasing her, that the journey be dispensed with."†

This was plain speaking enough, but we can easily imagine the feelings of one so long retired within his shell and living a life of quiet and peace amongst his books, at being suddenly called on to enter the busy court life of a young Queen of a somewhat *exigeante* nature, and dwelling in what seemed a far-away and desolate country. On the same date, Descartes wrote to Elisabeth telling her of his communications with the Queen, and stating that one reason of his delay was that he might first of all receive her commands and hear how he might best be of service to her. He proposes to spend the winter in Sweden and pay his respects to her

* *Corr.*, vol. v., p. 327. † *Ibid.*, vol. v., p. 329.

thereafter, when peace would most probably be reigning throughout Germany. The Peace of Westphalia had, indeed, been brought about the year before, but naturally it took some time for its effects to be everywhere appreciated. The condition of Germany had been a melancholy one during the long struggle of thirty years, and the German princes themselves began to withdraw from the area of war. The Peace had been effected in part by the pressure brought to bear on the Emperor and Maximilian by the successes of Turenne, and in part, indeed, by the able young Swedish Queen, who took a strong line of her own, despite the efforts of her Chancellor, Oxenstjerna. The religious difficulty was to a certain degree met, and, as we have said, Charles Louis, Elisabeth's brother, had received certain estates and a new electorate. Hence the long series of troubles which grew out of the Reformation was closed, by giving to each prince supremacy in his own dominions, and recognising Calvinism as having a position equal in power with Lutheranism as a religious force. In short, the modern system of states in Europe now became recognised as such. Descartes' interest in all political news is seen from his correspondence with Brasset, the French Resident at the Hague. He rejoiced, in March 1649, at hearing of the Peace of Ruel between the Parlement and the court; for since he had been in Paris, and after the victory of the Parlement in October 1648, the struggle had yet gone on, although it altogether deteriorated in character. A common sentiment of hatred against Mazarin now drew together Parlement and nobles, the latter caring nothing for constitutional rights, but desiring to recover their ancient power.

The negotiations for Descartes' journey to Sweden were carried on for a considerable time. He wrote to Chanut on April 23rd, half apologetically about the visit of the admiral Flemming, who arrived, as we have seen, before the news of his probable advent; not knowing his mission, he "had not the presumption to imagine that a Queen with so many important things to do, and

who employs every moment of her life so worthily, would have had the goodness to charge you to hand me over to his care on her behalf." * To Brasset, however, he writes that one can conceive of Ulysses quitting the enchanted Isles of Calypso and Circe for the unfertile land of his birth; "but I confess that a man born in the garden of Touraine, who is now in a country where, if there is not as much honey as God promised to the Israelites, there yet may credibly be discovered more milk, cannot so easily make up his mind to quit it for a land of bears between rocks and ice. Yet because this country is also inhabited by men, and since the Queen who governs them has herself more wisdom, intelligence, and reason than all the wise men of the cloisters in the Colleges, whom the fertility of the country in which I lived has produced, I persuade myself that the beauty of the place is not necessary to wisdom, and that men are not like trees, which one notices do not grow so well when the earth to which they are transplanted is poorer than that in which they were sown."† To Clerselier, again, he writes of his repugnance to the journey, to which the friendship of Chanut alone reconciled him. Chanut, however, had obtained permission to return to France, and this he did in the end of May, thus making Descartes doubt still more the wisdom of his undertaking. To Elisabeth he none the less writes, in June, that he is still going to Sweden, Chanut having seen him in passing, and having persuaded him by his account of the marvellous Queen—"so that the road no longer seems so long or tedious as before." But he looked forward, above all, he says, to be able to render some service to his beloved Princess. Chanut had been disappointed of his hopes of being relieved from his office of ambassador in Sweden, so that his return to his wife and children at Stockholm was assured, and this smoothed away some of his many difficulties. Descartes had every reason to admire and love this friend who was ever ready to help him, and who, as he says to Freinshemius, longed to make all his friends care

* *Corr.*, vol. v., p. 352. † *Ibid.*, vol. v., p. 349.

for one another. On the faith of his assurances, he prepared his little "equipage" for the start. But his way did not yet seem clear. He knew he had many enemies, and these might, he thinks, have written calumnies against him. Then, again, the *Passions* had been sent to the Queen, and Clerselier wished to print it: the Queen might perhaps think that what had privately been sent her should not be made public, while it was yet too small a treatise to carry her name. The difficulties were, however, at last resolved. The treatise was to be printed, and the voyage undertaken, especially as Chanut continued to write encouragingly from France. As to the *Passions*, at first Descartes had put off the importunities of Clerselier, saying that the book wanted revision and additions, and that it would not be printed till he went to Sweden. He placed it, however, in Clerselier's hands in August, and it was finally printed in Amsterdam in the end of November by Louis Elzevir, though some of the copies bear on the title-page "à Paris, chez Henri Le Gras."

This treatise, being the last published in Descartes' lifetime, has, for that reason, special interest for us. It is an elaborate argument to show how all the various psychological manifestations may be clearly and rationally explained by purely mechanical causes. We must, says Descartes, set aside the conceptions of former days, and remember that the best way to come to know the passions is to consider the differences that exist between soul and body (for what is a passion in the soul is usually an action in the body), and see to which of them we must attribute any special function. For instance, it is evident, he explains, that thought pertains to soul and heat to body. The soul cannot give heat to the body, or we should not have death: a dead man is, in Descartes' view, just a broken watch instead of one fully wound up. After giving a full and detailed account of how what he regards as this wonderful "machine" acts, he goes on to consider the thoughts which pertain to soul, *i.e.*, the actions of our will which directly proceed from, and depend on it,

and the passions which are the various kinds of perceptions found in us. He distinguishes the passions from all other thoughts, defining them as "perceptions, sentiments, or emotions of the soul which are specially related to it, and which are caused, maintained, and fortified by some movement of the spirits." * Soul, he tells us, is joined to body in such a way that we cannot say that it pertains to one organ rather than another: it has no relation to extension, it is not affected by the removal of any particular organ, while yet it entirely separates itself from the body when the whole of the bodily organs dissolve. There is, however, a little gland in which the soul exercises its functions more specially than in the rest, and we judge that this is so from the fact that it is single, while the other parts of our brain and our organs of sense are double: there must, in Descartes' view, be some place in which these double images may unite before arriving at the soul, and this, doubtless, is the place. The seat of the passions is not, he tells us, in the heart, "though we feel some change in it through them by means of a nerve which descends to it from the brain." "The soul from its seat in the gland in the middle of the brain spreads abroad throughout the body by means of the spirits, nerves, and even blood, which last, participating in the impressions of the spirits, can carry them by the arteries into all the members," reminding us of what happens in the body when the nerves, excited by sensible objects, open through their filaments the pores or valves of the brain, thereby causing the "spirits" to pass in and influence the muscles, as we have seen before.†

Descartes says that if the image which is unified in the gland inspires fear, or has relation to what has formerly been hurtful to the body, the passion of fear is aroused, and then those of courage or the reverse, according to the temperament of the body, or strength of the soul. Sometimes, he explains, the brain is so disposed that the spirits reflected from the image thus

* *Passions de l'Âme*, pp. 60, 61 (Cousin's edition). † *Ibid.*, p. 66.

formed on the gland affect those nerves which cause the back to turn and flight to take place. In Descartes' view, passions are thus caused by the movement of the "spirits," and bring with them certain movements of the body. The passions "incite the soul to desire the things for which they prepare their body, just as fear incites the desire of flight." The will, however, unlike the passions, is always free; the action or will of the soul can only be indirectly affected by the body, while the passions depend absolutely on the actions which bring them about, and are only indirectly affected by the soul, excepting when it is itself their cause. The soul, however feeble, may obtain absolute power over the passions if it applies itself thereto with sufficient industry, though it may be difficult to change or arrest them as quickly as it would.

Having shown the action of the passions to be entirely explicable on a mechanical basis, Descartes goes on to sketch out their number and order. The first stage is interesting from a psychological point of view; it gives a comprehensible explanation of what had been a constant source of difficulty. If the laws of mechanism could make the emotions explicable, it might be anticipated that they would everywhere be applied with success. But when each passion was examined separately, the action of the "spirit" which caused it considered, as also the methods by which it was manifested, the insufficiency of the system became evident, even although there was much that was acute and interesting in the descriptions of the nature of the emotions and their accompaniments. Here, as before, we are confronted with the difficulty of reconciling the two sides, the soul and the operations of the "animal spirits" or whatever the external exciting cause may be; and the question of how the one should control the other or come into any relationship with it at all, once more meets us. As a contribution to psychological analysis, however, the treatise still has interest to us, even though its physiological basis can no longer be accepted.

CHAPTER XIV

LAST DAYS, 1649-1650

Now that all was prepared, and the day of departure fixed, Descartes thought it expedient to make a disposition of his affairs, not knowing what might be his fate in the arduous undertaking that was before him. Baillet speaks of this as a presentiment; but it is surely comprehensible enough in one who seldom made long journeys and thought much about his health. He gave to Picot an exact account of his debts, and also of what was due to him, which Picot was to recover in order that these debts might be paid: in case of difficulty only was recourse to be made to the writer's brothers.* Two boxes of papers went to Sweden, while one box was deposited at Leiden with Hooghelande, who was to open it in the event of Descartes' death. Descartes did not make a regular will, for the curious reason that he wished to avoid dispute, but he left to his heirs any property that might be discovered; in Holland he declares himself to have had nothing.† The papers in the Leiden box were of little value, and were simply letters which he thought the writers might not like to be made public, and most of which might, he says, be burned.

Descartes was not destined to be rich, and he left almost nothing at his death. Picot undertook the management of such business as he had, promising to forward only such letters as were necessary, and to read

* *Corr.*, vol. v., p. 408. † Baillet, vol. ii., p. 386.

all his business correspondence. This arrangement, however, dissatisfied Descartes' elder brother, who thought himself overlooked. Descartes writes rather bitterly about this brother to Picot, saying that he truly was in no respect his agent, which he wished to be in spite of him, and making serious complaint that already he had cheated him of his paternal heritage, believing that he would rather lose it than go to law. The younger brother's methods of managing his business at a distance were possibly not adapted to peaceable relationship with a family with which his sympathies were but few. He had not arranged his affairs to his own advantage, and his disappointment respecting the promised annuity had doubtless some connection with the fact that it would have allowed him to be free from pecuniary cares. It is clear that his means must latterly have been restricted. He had never devoted his attention to making the most of his property, and he evidently did not consider his immortal works as having any further monetary value: they certainly had not proved valuable in this way heretofore. All he cared for was honestly to meet his liabilities, and his wants were few.

Brasset tells us how he "left his dear solitude of Egmond" on September 1st for Amsterdam, where he embarked after leaving the *Passions* with Elzevir the publisher.* His servant was a German, by name Henry Schluter, who had lived formerly with Picot. Descartes was very thankful to have the loan of this young man for six months (as long as he required him, as it proved) from the kind Abbé, for he was faithful, industrious, and intelligent, had a fair knowledge of French, Latin, German, and Flemish, and could assist him also in experimental work, since he had studied at a college, and had some knowledge of mathematics. Above all, he was sincerely attached to his master, who reciprocated his tender feelings in a marked degree.† On Descartes' death he was inconsolable, and his tears it

* Baillet, vol. ii., p. 386. † *Ibid.*, p. 458.

is said, flowed day and night, until his master's body had to be removed.*

A number of friends came to bid the philosopher adieu, including a certain M. Bloemaert of Haarlem, a churchman who devoted his means largely to the instruction of the Catholics in Holland, and whom Descartes often visited while at Egmond. He insisted on his distinguished friend's allowing him to make a sketch of him before his departure. Brasset tells Chanut of how he came to say good-bye with his hair in curls, his shoes terminating in a crescent, and his gloves trimmed with a soft white material.† "He reminds me of that Plato who was not so divine that he did not wish to know what humanity was, and I considered that the retreat of Egmond was going to send into Stockholm a courtier all shod and clad."‡ This is, doubtless, the dress of the fine portrait now in the Louvre, painted probably at this time.

In making his temporary home so far away, it was comprehensible that Descartes should have desired a faithful correspondent, such as for so many years Mersenne was to him, who would keep him thoroughly posted up in the doings of the scientific and literary world. A certain M. Carcavi offered himself for this purpose; he had left the Parlement of Toulouse to establish himself in Paris, and was interested in science, possibly in rather an amateurish way. In any case, Descartes' reply was very cordial, and he commenced the correspondence by asking that he might hear the result of Pascal's experiments with the tube of mercury on Puy-de-Dôme, and at the garden of the Minim Fathers at Clermont. This experiment which, as we

* Chanut was much impressed by his faithfulness, and gave him, in addition to Descartes' wardrobe, a sum of money which was found in his master's boxes. After the latter's death, Schluter went back to Holland, where he served Brasset and another, and then returned to Sweden under Oxenstjerna's protection: here he rose to a post of honour. It is remarkable that Descartes ever found devoted servants.

† "Des souliers aboutissans en croissant et des gandz garniz de nege."

‡ *Corr.*, vol. v., p. 411.

have seen, had been carried out by Périer, Pascal's brother-in-law, in September 1648, was one which Descartes states that he suggested two years previously.* Carcavi replied by giving a full account of what had been done, and Descartes expresses himself as specially delighted, since he considered the result "entirely in conformity with his principles." † We may say that on the arrival of the philosopher at Stockholm, he found letters from Chanut, one of which was probably that in which he begged him on the part of Pascal to make a study of the varying heights to which mercury would rise in a tube devoid of air. These experiments were made simultaneously at Stockholm, Paris, and Clermont in Auvergne, and Pascal attributes the Swedish ones to Descartes and his friend Chanut.‡ However, as the latter did not reach Stockholm till December 1649, they must, until this time, have been carried on by Descartes alone. Afterwards, the two very likely worked together until both became ill, and latterly Chanut must have performed the work alone, since Pascal says it was continued till September 1650. Chanut thought the state of the wind affected the height to which the mercury rose, though Descartes did not, as we may judge by inference, pay any attention to these suggestions.

In spite of his apparent desire to fill Mersenne's place in Descartes' estimation, Carcavi as a correspondent was not wholly a success. He wrote largely on mathematical subjects, but without sufficient knowledge, and he entered upon pedantic discussions of points of no real interest. He had, what was to Descartes, a disagreeable way of trying to correct him by Roberval, for whom he had so great a dislike, and of criticising his dead friend Mersenne, and therefore we cannot wonder that the correspondence soon abruptly ceased.

Descartes had considerable anxiety about his reception in the strange court to which he was going. He felt that envious tongues might have been already trying to discredit him in the eyes of the public and of

* *Corr.*, vol. v., p. 366. † *Ibid.*, p. 391. ‡ *Ibid.*, pp. 447-48.

the Queen. He knew that the nobility despised and hated all sorts of learning, and that the erudite Queen was made an object of ridicule by strangers, who said that she was attracting all the pedants to her court, and that soon the government would be entirely in their hands. As a foreigner, too, Descartes thought he might be regarded with some jealousy. His religion was not the religion of the country, and he might be supposed to aim at imposing his views upon the Sovereign. Freinshemius, however, reassured him, and he could but hope that all would turn out well. The voyage was of about a month's duration, so that he reached Stockholm early in October. At once he made his way to Madame Chanut's house, where she presented him with letters from her husband, and showed him a room prepared for him, the use of which he could not possibly refuse. Certainly his surroundings were all that could be desired, for he was living with a family where peace and order reigned. His hostess was more than charmed to receive him, as the intimate friend of both her husband and her brother, and the return of the former was anticipated before much time had passed. The family consisted of two boys—Martial, afterwards Abbé of Issoire, and Hector, who became a councillor; and all, including servants, had, we are told, "the fear of God and the love of virtue" impressed upon their minds.*

The day after his arrival, Descartes had an audience with the Queen, whose reception of him augmented the jealousy of the other savants, though not of Freinshemius, who was ready to explain to him the customs of the court and country. Apparently the pilots who arrived in Stockholm were in the habit of reporting themselves at the palace, and in this case the Queen, for her amusement, had the man who had conducted Descartes brought before her, in order to inquire of him his views regarding his passenger. "Madame," he replied, "it is not a man whom I conducted to your Majesty, but a demi-god. He taught me more in

* Baillet, vol. ii., p. 388.

three weeks of the science of seamanship and of winds and navigation, than I had learned in the sixty years I have been at sea. I believe myself now capable of undertaking voyages longer and more difficult than before." This speech, of course, might have been composed partly to please his auditor, but still it was a striking tribute to the great philosopher's powers.

The third day after his arrival, Descartes had another interview, and of both he gives an account in writing to the Princess Elisabeth.* He tells her that he is in no way disappointed in the virtue and merit of the Queen, much as it had been lauded, adding that she possessed a sweetness and goodness of her own which made men devoted to her service. One of the first questions she had asked, had reference to the Princess, and Descartes took the opportunity of telling her his opinion of his royal friend, for, "remarking the strength of her mind, I had no fear of causing her to be jealous, just as I am assured your highness will not be jealous though I write my sentiments freely of this Queen." He goes on to say, "She is extremely devoted to the study of literature, but since I do not know that she has done anything in Philosophy, I cannot judge of what her taste will be, nor if she will be able to take the necessary time to study it, nor consequently if I shall be able to give her any satisfaction or be in any way useful to her." The direction in which the young Queen's studies had tended heretofore, evidently gave no satisfaction to her would-be instructor. "The great ardour which she shows for the study of letters incites her at present to cultivate more particularly the Greek language, and collect many old books; but perhaps that will change. And if it does not change, the virtue which I notice in this Princess will always impel me to put the value of my services before the desire to please her; hence that will not prevent me from expressing my sentiments frankly. And if they fail to be agreeable to her, which I do not think they will, I shall at least have the satisfaction of having done my duty, and it will give me the

* *Corr.*, vol. v., p. 429.

power of returning to my solitude, out of which it is difficult to venture far when searching after truth, which is my principal object in this life." * Evidently, anxieties were even now laying hold of the philosopher turned courtier, as to how the experiment would turn out. One satisfaction he had, in that he was only called to court when he was to have a royal audience. Though he held the Queen in great veneration, he did not think anything would keep him where he was beyond the summer. The Queen, on the other hand, had plans of naturalising him, and making him a Swedish noble. Descartes, however, also told Picot that though he had received a favourable reception, and had felt when in the house of the ambassador rather as though he were in Paris than in Stockholm, his resolutions could not possibly be changed, and that January was a good month in which to travel. This was an earlier date than had been before suggested.

Madame Chanut had another guest in a Count de Bregy, from the embassy of Poland, who came ostensibly to do homage to the Queen, but really, it was supposed, to stay in Sweden for other reasons. With him Descartes established a friendship, and this threatened to lead him into being involved in the intricacies of diplomatic negotiations. It became bruited abroad that Bregy had proposed to assist the Queen in furthering certain political designs. The Queen, Baillet says, was cautious, and wished to know Bregy better before employing him. Hence she is supposed to have tried to attain her end of getting to know more of Bregy through his friendship with Descartes. If the latter had become involved in this affair, he kept his secret absolutely dark. He did, however, on two occasions write to Picot, asking him as an older friend to give him his opinion of Bregy, and saying that he had a special reason for inquiring, but that it was unnecessary to mention his name in writing.

The attentions which the Queen required of Descartes were not small. She wished to learn his philosophy

* *Corr.*, vol. v., p. 430.

from his own mouth, and she considered that her mind would be clearest the hour after she got up, which would also be the quietest and least disturbed portion of the day. Descartes did not venture to suggest that to be in her library at five o'clock in the morning was to alter his whole manner of living, and cause real danger to his health, in a climate so much more rigorous than any to which he had been used. He, it must be recollected, had been in the habit of lying in bed and meditating until late in the day, and this sudden change of custom must have been most trying to him. The Queen, it is true, excused him from the ceremonies of court manners, and she allowed him a month or six weeks to familiarise himself with the place and its ways; but in any case the thoughtlessness of the arrangement can only be explained by her youth and inexperience.

Chanut was on his way to Sweden with the title of ambassador: he left Dunkirk on the 24th of October, and arrived at Stockholm on 20th December. His advent must have been a real pleasure to his friend, for Descartes had soon tired of the idleness of court life, and the court itself was occupied with nothing but rejoicings on the celebration of the Peace. The Queen evidently thought her guest should play his part in the general diversions; and as he would not consent to dance in a ballet, she made him at least write French verses for the ball. This, of course, was in imitation of the Parisian manners of the day, which the Swedes were fain to copy. The verses, we are told, did not detract from the reputation of a great philosopher, and they were thought too good to come from the mouth of one who "might have been supposed to have stifled the poetic genius by his study of mathematics and philosophy." It is curious to read in a postscript to a letter to Bregy that Descartes is adding to his packet the words of a ballet which he had prepared for the dance next night. Its subject appears to have been "The Birth of Peace;" * and besides this ballet he wrote a

* *Corr.*, vol. v., p. 459.

comedy in French, now lost.* Baillet, who had seen the latter as well as the ballet, says it was a "French comedy, rather mysterious, but straightforward and after the manner of the ancients."† Possibly, the loss of these fragments was not a very great one, and they were not apparently taken very seriously by the author, but their composition may have increased the rancour which his rivals bore him. These last took every opportunity of injuring him, and of undermining his influence with the Queen. His principal rival in the royal favour was Isaac Voss, or Vossius, who, when he died, was a Canon of Windsor. He instructed the Queen in Greek, and the not too reliable Sorbière tells that after being present at some of the lessons, Descartes stated that he "was astonished at her Majesty's amusing herself with such trifles; as to him, he had learned them all alone in college as a little boy, but he was satisfied to have forgotten them when he came to an age of reason."‡ It is extremely unlikely that he said anything of the kind, but we know his opinion of the study of the classics from his letter to Elisabeth quoted before.§

The Queen really appreciated her distinguished guest, or she would not have been so pressing in her requests to him to stay. We may hope that he was not required to rise early every morning, as some said, but only two or three times a week, as Chanut declares. In a letter to Bregy on January 15th, Descartes states that he had only seen the Queen four or five times since

* The Te Deum had been sung in honour of the Peace, and the Queen's birthday was celebrated at the same time. Brasset writes that the Queen danced in a ballet on 9th December, as Diana victorious in love. The verses he describes as very poor, but this is not the ballet of 19th December, for which Descartes composed the verses.

† Baillet, vol. ii., p. 484.

‡ *Lettres et Discourses*, vol. iv., p. 692.

§ In Philibert de la Mare's *Life of Claude Saumaise* much the same tale is recounted. It is doubtless from Saumaise, or rather from his son, who wrote to his father from Stockholm, that Sorbière derived his information (pp. 198-199, *Claudii Salmasii, Eruditorum principis, vita.* Quoted in Descartes' *Corr.*, vol. v., p. 461).

December 18th, because she had been for a fortnight at Upsala, where he had not gone. Queen Christine did a really important piece of work, we must remember, in making him promise to put in order the writings which he had not published. Her idea was that he should draw up a complete body of Philosophy; but the real value of her request was fully appreciated six weeks later. At her desire Descartes attacked the box of papers, which was in a state of great confusion. Amongst the principal fragments were those on *Man* and *The Formation of the Fœtus;* and it is curious that these treatises, which were of so much interest to later physiologists, were by the author condemned to be suppressed. Clerselier took the trouble of deciphering them, and putting them in order, with the help of De la Forge and Gutschowen of Louvain.* In addition to these physiological treatises there was the fragment called *La Lumière* or *Le Monde*, of which we heard before: the larger treatise had, as we have seen, been suppressed. There was also a fragment on mechanics, but the main papers of interest were Descartes' letters, which form practically a record of his life. The box naturally contained the draft letters only, and the text was in some cases altered, while they were often badly written on stray sheets without name or address, so that Clerselier had a hard task in his work of editing them. It is only in the present day that a really exact and, as far as may be, correct version of these letters has been given to the world.

Of other unpublished papers there were a good many on Mathematics and Physics, and the small works of Descartes' youth—the *Parnassus*, *Olympica*, etc., mentioned before. There were, likewise, sketches of works undertaken, and a mass of other detached thoughts. Many of these were scattered, but most of the material was probably incorporated in Descartes' other work. The treatises that were most complete were the *Regulæ* and *La Recherche de la Vérité*. The little French comedy was a pastoral and incomplete:

* Baillet, vol. ii., p. 398.

in it the search for Truth and study of Philosophy were symbolised by the discourse of various allegorical personages; but, as Baillet wisely says, if we have the writer's works before us, these mysteries have little importance.

Descartes, according to Baillet's account (and this is derived from contemporary evidence), soon succeeded in disabusing the Queen's mind of certain prejudices against his *Principles*, and taught her that there were many things which cannot be judged of by sense alone. The *Meditations* and the geometric method are said to have appealed especially to her. If this young woman of three-and-twenty did really attain to any appreciation of Descartes' merit, it is to her credit; in any case it was, of course, said that she had taken him too much into her confidence, and that he was giving advice in matters other than science and philosophy. The pressure brought on the philosopher to remain, was very strong, but the climate was evidently trying to his health. When the Queen, in January of 1650, perceived this, she suggested to Chanut that an estate should be secured to him in the most southerly of the lands acquired by Sweden by the recent Peace (possibly in Pomerania or the Duchy of Bremen), and that he should have a pension settled on him, with the view of keeping him in her dominions. Chanut thought the plan a good one, as it would provide him with the means of living happily and honourably, free from the worries of court life, and on the sole condition of making his studies known to his benefactress. It might, indeed, in a material sense, have relieved the possessor from some natural anxiety.

Chanut, however, fell ill on the 18th day of January, after returning from a walk with his friend. He was attacked with inflammation of the lungs, and for some days suffered from high fever. The cold was excessive during that winter—the old people never remembered so cold a season—and Descartes must have felt it keenly, though he devoted himself assiduously to the nursing of his sick friend. In spite of his attendance in

the sick-room, he did not feel at liberty to suggest a change of hour in visiting the palace. When going there, he had to pass over a long bridge between the ambassador's house and the palace, which was always bitterly cold, and this extreme cold seems to have affected him, whether or not it was the case that a carriage was sent to fetch him and take him back.*

On January 15th, Descartes tells Bregy something of his feelings regarding his new abode. He tells him that he pays no visits and hears nothing: "it seems to me that men's thoughts freeze here during winter, just as does the water." "I assure you that the desire which I have to return to my desert increases every day, and that I do not know if I can even wait till your return. It is not that I have not great zeal in the service of the Queen, nor that she does not show me as great kindness as I can reasonably expect. But I am not in my element here, and I wish only for tranquillity and repose, which are goods that the most powerful kings on earth cannot give to those who do not themselves know how to obtain them."† All this showed how weary Descartes had grown of court life, and how anxious he was to break with it.

The Queen, without the least thought of the trouble she was giving him at a time of anxiety, got Descartes for several days to return to the palace in the afternoons to talk over with her a plan of having a meeting or assembly of learned men, which she wished to make into an Academy like that of France, and of which she was, of course, to be the president. This appeared to her to be an excellent opportunity of getting the advice and assistance of the distinguished man who would himself have given lustre to its name. It was just eleven days before his death that Descartes brought to her a memorandum of the rules which he proposed for the conduct of its affairs. They were mainly rules adapted to any meeting for discussion of an orderly sort, but the

* Viogué says he journeyed in the ambassador's carriage. Baillet, vol. ii., p. 550.

† *Corr.*, vol. v., p. 467.

primary regulations laid down the condition that only subjects of the crown might take part in debate, since it was for them that the assembly was intended. All were "to study, not to contradict, but to seek for the Truth." "When it shall please her Majesty to conclude the sittings, she shall do those present the favour of resolving the whole question, praising the reasons of those who have come nearest to the truth, and changing or adding whatever shall be requisite to make it possible to discover the solution."* The Royal President's duties would surely not be light! Descartes charged her (perhaps knowing something of her nature) not to be too rigorous in her methods, but to allow liberty to reign so far as might be. One rule was to the effect that a stranger might, at the Queen's desire, be present, but only as an auditor, or if called upon to speak, he was to do so only at the end, and by special request. This the Queen ascribed to the modesty of the writer, since she meant to make Descartes Director of the Academy; his view, however, was that strangers had caused much disorder in the academies of other countries, and that they should not be encouraged. We hear of these little assemblies meeting every Sunday after Descartes' death.

It was after his visit to the palace, in connection with the proposed Academy, that Descartes felt symptoms of the illness that was to prove fatal to him. It began with shiverings (which he tried to cure with brandy), just as Chanut, who had been a fortnight ill, was beginning to recover. On the 2nd of February, being the feast of the Purification of the Virgin, there was a Celebration of the Holy Sacrament in Chanut's house, and this Descartes attended, "not," Baillet says, "to give an example in piety to a house where there were others so to do, but for his own sanctification." The officiating priest was a Father François Viogué, who had, Baillet says, been Descartes' spiritual director since coming to Sweden. This day was the last occasion of his being out of bed. He was seized just as

* Baillet, vol. ii., p. 413.

Chanut had been, and soon inflammation of the lungs developed, accompanied by high fever. Naturally, the Queen was blamed, as in some measure she deserved to be. But there were also sinister, and of course quite unfounded, reports of poison administered by rival courtiers, while the patient was blamed for taking too much spirits as a cure for gout. The Queen herself ascribed the illness to the exceptional severity of the season, infection being naturally unthought of. Chanut advised the remedies which had proved beneficial to him, but the fever affected the patient's head, and apparently no one could persuade or force him to do what was desired. The Queen's principal physician, who, as Descartes' friend and sympathiser, and a Frenchman, might have had some influence on him, was away, and the doctor who did attend him was a Dutchman, who had been an enemy of Descartes since the war of words at Leiden, and who had violently opposed Descartes' advent into Sweden, thinking his ideas on medicine might discredit his own. At first he refused to see this physician or to be bled, believing that he was only affected by rheumatism. On the third day, however, he consented to see the doctor, but still refused to be bled, saying, "Messieurs, épargnez le sang français." * He also appears to have told the doctor very plainly that he would die more happily if he were not there, and the doctor rather naturally took offence and departed. Chanut did his best to nurse him, ill as he himself still was, and the Queen in her anxiety sent doctors, but they did not dare appear before the invalid, so that they simply remained in Chanut's house, advising M. and Madame Chanut as well as possible. The patient's language was said to have been that of piety, despite a wandering brain. On the eighth day Descartes recognised that he had been wrong, and consented to being bled. Having been bled once he asked to be bled again an hour later, but the fever did not diminish, and the sick man felt the case was hopeless, and asked for Viogué, his director, that he might commit himself

* Baillet, vol. ii., p. 418.

to the mercy of God. He was overwhelmed with the kindness that had been shown him by the Chanuts. Madame Chanut had, indeed, devoted herself to nursing her guest with the utmost assiduity, sitting up at night and tending him as she had just done for her husband. Many more medical details of his illness are given by Baillet, which may well be omitted. According to his biography, he would appear to have been much occupied with religion, and told Chanut that he was ready to die in conformity with God's will, trusting that this voluntary sacrifice would expiate the sins of his life. Just before the end he had felt better, and had sat up by the fire with the help of the faithful Schluter. But a faint turn came over him, and he said, "Ah, dear Schluter, this is the fatal stroke that must part us." Schluter got him into bed and fetched the ambassador and Viogué. All assembled in his room, but he could not speak. Viogué begged him to make a sign if he wished the final Benediction, for he had not the means of administering to him Extreme Unction. The dying man opened his eyes, and looked up in a manner which they considered signified resignation to God's will. The Father gave the usual exhortations, and Chanut said that "his friend was leaving life happily, in satisfaction with his fellow-men, full of confidence in the compassion of God, and only bent on discovering and possessing that Truth which he had sought all his life." The Benediction was pronounced, and all joined in offering up his soul in the name of the Church. They had not concluded their prayers, when the soul of him who had been so great a force in the world, who was to be an influence not alone in his own century, but in every century to come, whom they all loved and admired, passed from the body. He died on the 11th of February 1650, in the fifty-fourth year of his age.

Chanut, of course, sent to inform the Queen of the news, and she was overwhelmed with grief; her tears flowed freely for the loss of her "illustrious master." She wished to erect a monument worthy of the famous philosopher's memory, and to have him buried amongst

the great ones of the land. However, Chanut wished his friend to be interred in the cemetery of the orphan hospital, where Catholics were usually buried, as well as all who were not of the Lutheran faith. The Queen expressed surprise at the choice, but Chanut was clear that his friend should lie amongst the "predestinated."

Not being yet able to write, he caused a letter to be written to Picot, requesting him to inform the relatives of the sad occurrence; the day before his death Descartes himself had dictated a letter to his two brothers, the Councillors in the Parlement of Brittany, in which he begged them, amongst other matters, to provide for his nurse, for whose wants he had always cared during his life. Chanut also sent for an artist, named Valari, to take a cast of the dead man's face.* The Queen wished to have a public funeral and to pay the expenses of it, but Chanut judged that this was not befitting a philosopher, nor one who had lived in quietude and simplicity. In truth, he may have feared arousing further jealousy, and he was more than anxious to maintain Descartes' reputation as a good son of his Church. Only those of his religion were invited to the ceremony: by the Queen's permission a Catholic service was held, and the body was carried by four young men who had been acquainted with the deceased philosopher. The day after the funeral an inventory was taken of his effects, and the faithful Schluter was rewarded. Chanut took possession of the writings, and later on they were sent to Clerselier by Rouen. They reached Rouen safely, but, as we have seen, near Paris the boat sank and the papers were left three days in the water. When found, they were hung up to dry by servants, who naturally got them into confusion, and Clerselier had the greatest difficulty in arranging them. The other box, of course, was with Hooghelande in Leiden.

Chanut thought a simple tombstone most appropriate

* Dr Götke of the National Museum at Stockholm, who has been kind enough to inquire about this cast, can find no trace of it.

to his friend, and he had a square stone made on which he placed inscriptions.

It was not long after this that the Queen abjured her faith and crown (according to her own statement assisted by Descartes' and Chanut's influence, though one would expect it to have been by the latter's only), and there was no one who had special interest in the tomb. Descartes had made a friend in D'Alibert, Treasurer-General of France, owing to his having advised him about the establishment of certain public halls or training schools for artisans of various trades. The scheme was an interesting one: each trade hall was to have a collection of the mechanical instruments which might be useful for the trades to be taught in them, and there were to be endowments for providing teachers for each trade, who should be acquainted with mathematics and physics, and be able to answer questions and explain the latest discoveries in the special branches taught. Lectures were to be held on holidays and Sundays to suit the workers. Descartes, who initiated this wonderfully practical and modern scheme of technical instruction, thought it might be very useful in breaking the artisans of those dissolute habits so commonly manifested on public holidays. D'Alibert had resolved to carry out these designs on Descartes' last visit to Paris, and they were to have become accomplished facts on his revisiting France; for when the country was at rest it was anticipated that Descartes would settle there.* But this, alas, was never possible. D'Alibert, however, in 1666, resolved in some way to celebrate the memory of his late friend, and after Chanut's death he decided to convey the body, at his own expense, to France, and place it in a church where all might visit the tomb, instead of erecting a monument in Sweden. The task was no easy one. The consent of many authorities had to be obtained, and many objections were made, but finally the coffin was taken to the chapel of the French ambassador's house, and the bones were put in a new coffin, excepting those of the right hand, which were given

* Baillet, vol. ii., p. 434.

to the ambassador Terlon as recompense for the service he had rendered in preserving Descartes' memory. Two trusty men were sent to accompany the remains, and Terlon himself went as far as Copenhagen, where the body was only landed with difficulty, owing to the superstitious scruples of the sailors. In January 1667 they reached Paris (after a three months' journey by land, and very many difficulties from custom-house officers and others), and here the remains were deposited in the chapel of St Paul's Church, while further ceremonies were arranged for. It was decided to lay the body to rest in the Church of St Geneviève du Mont, the modern Pantheon, as being associated with the Sciences. The Chancellor of the University was chosen to pronounce the funeral oration with Clerselier's assistance. M. d'Alibert saw that everything was conducted in the most impressive and magnificent way possible. The funeral started from his house, the body was taken up at St Paul's, and the procession, consisting of the clergy, the poor (who were given clothing in memory of the great philosopher), the carriages of various eminent persons, etc., made its way to St Geneviève, where it was received with every pomp and circumstance. The oration was to have been publicly pronounced next day, but this was stopped by order of the court, and a service alone was held; after mass was said, various certificates regarding the true catholicity of the defunct, from Viogué, Chanut, Clerselier, etc., were presented to the members of the Order who resided there, while an engraved plate was placed on the coffin. The certificate of the ex-Queen of Sweden was sent too late to use; she, of course, was much distressed at the removal of the body of her former master. The ceremony concluded with a feast given by D'Alibert at the "famous Bocquet's."

A marble tombstone was afterwards erected on the wall with a representation of the man and an epitaph in French; also a Latin inscription by Clerselier. In 1819, after being temporarily deposited in the court of the Louvre during the Revolutionary period, the

remains were moved to St Germain-des-Près, where they now are.*

The letters written on the death of Descartes were many: such as can now be found have been collected by the assiduity of MM. Adam and Tannery, and printed in their new edition of Descartes' works. Chanut, of course, wrote many letters. He it was who announced her loss to the Princess Elisabeth. The latter had, about a month before his death, written to her friend to assure him that she was happy to hear his news, and especially that he was not disappointed in the merits of the Queen. She assures him that she is not jealous, but esteems herself the more in that her sex is by this royal student relieved from the character of "imbecility and feebleness," that the pedants would ascribe to it. She believes the Queen will soon learn to "prefer his philosophy to their philology."† At that time she was hoping to see her correspondent after his return from Sweden, and the blow of his death must have been overwhelming to her. Chanut returned her letters, which were afterwards published by De Careil; the Princess would not allow Chanut to publish them at the time. Of the numerous accounts of his death, in prose and poetry, many appear to have the special object of proving the orthodoxy and churchmanship of the dead man, which had been seriously impugned. Clerselier writes a panegyric of his virtues. But what is more interesting is that he

* The following is the inscription on the black marble tablet which forms Descartes' tomb:—

"Memoriae Renati Descartes reconditioris doctrinae laude et ingenii subtilitate praecellentissimi qui primus a renovatis in Europa bonarum litterarum studiis rationis humanae jura salva fidei christianae autoritate vindicavit et asseruit nunc veritatis quam unice coluit conspectu fruitur.

And on the base of the tablet:—

"Quorum cineres religiose primum loculis suis conditos dehinc communi fato per xxv. annos inter profane exules quum terrae sacrae renovata piarum exequiarum pompa redderentur regia inscriptionum et humaniorum litterarum academia titulis adscriptis serioribus aetatibus commendavit, xxvi. Febr. MDCCCXIX.

† *Corr.*, vol. v., p. 452.

records these as amongst his last words: "My soul, thou hast long been held captive; the hour has now come for thee to quit thy prison, to leave the trammels of this body; suffer, then, this separation with joy and courage."* We have every reason to believe that these were Descartes' real sentiments. He loved and clung to life more perhaps than most men, for his life was on the whole a happy one, and he was fully conscious of his powers. But he never forgot that he also had to die, and that he must learn not to fear death, which, after all, was but the liberation of the spiritual element, so hard in this life to associate with the material. There was much that he did not see clearly, much that passed current in the religion of his day that did not harmonise with his system, and yet that he was genuinely anxious not to break with. But when face to face with the greatest fact of all, he never wavered. Life is good, but there is something better still, however little we know of what it is. We are not free, but bound by fetters from which there is in this world no escape. Therefore, when the grey shadows drew around him he was ready, "with joy and courage," to meet the call.

* *Corr.*, vol. v., p. 482.

CHAPTER XV

PERSONAL CHARACTERISTICS

DESCARTES' appearance may be pretty well gauged by the excellent portrait by Hals now in the Louvre, and so often reproduced.* His height was under the ordinary, and his figure rather slight and well formed, although the head is said to have been large in proportion to his body. His forehead, as may be seen, was prominent, but the hair grew down upon it almost to the eyebrows. His complexion, as he tells us himself, was pale in youth, but in Holland he gained some colour, though he lost this before the end. On his cheek he had, somewhat like another great man, a wart or pimple which, though occasionally removed, always grew again. The lower lip projected a little, the nose was rather prominent, and the eyes were dark grey. His expression was said to have been agreeable, though this does not strike one in the portraits, and he had the power of retaining his self-control, and maintaining his serenity even in course of a dispute. His voice was pleasant, but he could not carry on a long discourse without interruption because of a slight weakness in the chest. His hair and eyebrows were somewhat black, and the beard, worn in French fashion, was not quite so dark; he began, however, to turn grey at forty, and soon after-

* Another portrait, evidently genuine, was for some time in Descartes' home at Endegeest, and was then removed to the University of Leiden, where it was laid aside. The late lamented Rector of the University, Professor Tiele, succeeded in discovering it, and kindly had it photographed on my behalf.—E. S. H.

wards took to wigs, "four of which were found after his death." The wig he thought most beneficial to health: he was particular about his head-dress being neat, and he had his wigs made in Paris, and of a colour as much as possible like his own hair: he begs Picot on one occasion to see that the black is "mingled with a few grey hairs."

Descartes did not, after the traditional manner of philosophers, omit attention to dress; he usually wore a beaver hat, at least after he became an ordinary civilian; before the siege of La Rochelle his clothes were green, but latterly he dressed in black, though in travelling he was attired in grey-brown. Always he wore a scarf, sword belt, and feather, whether in Paris or in the country. In Holland he made the distinction of using cloth instead of silk, but his stockings were always of silk, though he used to cover them with grey woollen hose when he went outside. These last must, one imagines, have resembled the blue stockings of Mr Stillingfleet, which gave their name to the assemblages of learned ladies that he frequented. That Descartes was interested in his appearance is clearly evidenced in a correspondence with Schooten, once a professor at Leiden, regarding a portrait of himself which Schooten was anxious to insert in the Latin edition of the Geometry, which appeared in May 1649. Schooten thought interest would be added to the volume by publishing an engraving of the author done by himself from life, in 1644, accompanied by verses composed by the younger Huygens. It was this portrait of which, when sent for his inspection, Descartes was critical. In fact, he wished neither portrait nor verses to be published at all, and begged at least that the title, "Seigneur de Perron," and the date of his birth, might be omitted, because he disliked titles, and because he objected to the makers of horoscopes, to whose arts the giving of such dates seemed to pander. The picture and verses, we may say, duly made their appearance, and may be seen in a later edition of the Geometry (1659), published after Descartes' death. Schooten

(who also sent a supply of pens—"enough to last a century if not lost") had asked the author to revise the first edition of the work: this, however, he had not felt inclined to do, partly because Geometry did not interest him as it once had done, and partly because he did not want to take the trouble of altering his not very elegant Latin; hence he took no responsibility for the book.

Descartes' mode of living was abstemious, and he drank very little wine, often taking none at all for months on end. His hours were regular for meals, and the food he took was always prescribed in amount and never rich. Never did he take more wine than his wont, even for the sake of companionship, but he made a point at the same time of entertaining his friends hospitably at table, and he was a good host, for the quietude of his life did not deprive him of his good spirits and cheerful manner. Baillet, who collected all this information about his habits mainly from reliable sources, which he always quotes, says that it had been reported that he was in the habit of mixing up his food upon one plate to aid digestion, but this assertion he sets aside as an idle tale. In any case Descartes studied, and was interested in his meals, and thought roots and fruits more fitted to prolong life than animal food; hence he dealt largely in vegetables of all kinds, especially when alone, or with like-minded friends, such as Picot. The latter, indeed, adopted a similar diet after returning home, thinking that it would add four or five years to his life. Eggs, however, Descartes appreciated, and, strange to relate, his experiments showed him that nothing was better than an omelette composed of eggs which had been hatched for eight or ten days; "if the time were less or more they would be detestable." He thought sadness rather than joy conducive to hunger. The first cause of sadness in life, he tells us in the *Passions*, is due to lack of nourishment, and the association remains through life.

He was not an early riser until his unfortunate experience in Sweden; he remained a long time in bed, and slept easily at any time in any place. He allowed

himself to waken voluntarily, and when he felt perfectly awake and free, he studied and meditated in bed, only half rising to write down his reflections. Thus he passed ten or twelve hours in bed, or, if he got up earlier, he was not visible to others, but kept himself shut up in his room devoting himself to study. And, besides this, he worked much both before dinner and in the afternoon. He apparently had that most valuable power of concentration which enabled him easily to apply himself to the work he had in hand, and to devote to it his whole powers. Latterly he wrote less, and devoted more time to conversation, cultivating his plants, or walking out. He took bodily exercise occasionally, and, Baillet tells us, in evident surprise, he "voluntarily went on horseback when he could have gone by boat on the canals." This, however, was some years before his death. A great part of his care would seem to have been spent in nursing his health, and he considered that he kept pretty well so long as he avoided doctors. He was first bled as a boy of thirteen, and refused to be bled again until just before his death, believing bleeding to be a dangerous custom. Indeed his interest in all medical details is curious and characteristic, and he had evident enjoyment in discussing these with friends. For the time, his general conclusions were wonderfully correct. He had a wholesome horror of quackery, being insistent that all treatment should be rational; he also had a dread of the drugs administered by empirics, and desired that those recommended by the chemist should be made use of with caution, since the slightest alteration in their character would, he considered, change their whole effect, just as in science the smallest error brings about totally wrong conclusions. At the age of forty he was so well that he thought himself as far removed from death as in his youth. But, as he puts it in writing to Chanut in 1646, instead of looking for the means of prolonging life, he "had found an easier way and a surer which was not to fear death." Still he took the greatest interest in diet and in exercise, and had a firm belief in not allowing

sudden changes to take place in his mode of life, which belief, indeed, it seems a pity he did not carry into practice to the end. He thought of the body as an excellently constructed machine, which, if in working order, cannot easily be put wrong. For the sick, nature was, he held, the best physician.

As to his household arrangements, Baillet says they were comfortable and well ordered. His servants were not numerous, but sufficient and well chosen and looked after. That he took an interest in their well-being we have seen, and we know that servants were anxious to find places in his service. He treated them kindly, and considered their welfare after they left him, besides which he tried to put no temptation to evil-doing in their way. Certain men who lived with him as servants became men of education and renown. Gutschovven was afterwards a professor of mathematics, and young Gillot became instructor in fortifications and mechanics to the officers of the Prince of Orange, and was afterwards sent to Paris with introductions from his late master. Schluter, his last servant, had, as we have seen, a very successful career. But these servants must have been to their employer secretaries or amanuenses rather than what we understand by valets, and they were able to take an intelligent interest in their master's work, and profit from his teaching, although not above attending to his material wants. His kindness to his dependents was also evinced in the care he showed for his nurse. Love of money, or parsimoniousness, was never a vice of the philosopher. He had, as Baillet says, always treated Fortune with some pride, and she revenged herself upon him for his disdain. And yet, though never rich, he was able to hold himself independent of her slights: he "conquered himself rather than his fortune." As we saw, Descartes inherited the small property of Perron in Poitiers with three farms, and all were sold. These, with some other property given him at his majority, amounted by his computation to about 40,000 livres. In addition to this

he succeeded to other small properties later on, but he died a poor man. "He was more curious to understand and explain the metals than to amass them."* No help from any private person was accepted for his experiments, since he thought, as Clerselier says, that "the public should pay for what he did for it." He wished to act honourably in all his financial affairs, and he had a curious appreciation of money which came by succession, which he seemed to think a more natural and right method of receiving it than any other.

As regards his other qualities, he is said to have been cheerful if not gay, despite his retired mode of life, and this cheerfulness carried him through much that might have seemed depressing, in his remote and solitary existence. His motives for seeking such complete retirement might have been many, but, as his motto shows, he had a passion for escaping from adverse criticism, which was not altogether admirable. His motto was taken from Ovid: *Bene qui latuit, bene vixit*,† and another was from Seneca:

> "Illi mors gravis incubat,
> Qui notus nimis omnibus
> Ignotus moritur sibi."‡

Was this life a selfish one, or is it the prerogative of genius to choose the manner of living which seems most likely to be conducive to its development? This last has been the view taken by other geniuses as great, and who can say that it is not justified? Descartes planned the course of his life as he conceived it to be best for his work. This life required quietude and peace, and these had to be obtained at whatever cost. There were others whose duty it might be to brave adverse opinion, and fight the battles of truth out in the open. His methods took another form and one which, though it

* Baillet, vol. ii., p. 461.

† Ovid, *Tristia* i., 2, lines 25, 26:—

> "Crede mihi; bene qui latuit, bene vixit, et intra,
> Fortunam debet quisque manere suam."

‡ Quoted from *Thyestes*, lines 401-403.

might be right for him, did not always seem the boldest. How far it is beneficial for all men to live in the lives of others, to re-echo their words and think their thoughts, may well be questioned: at least, in the case of those who can do original work, it is surely best that they should have full opportunity given them for quiet contemplation.

At no time probably was Descartes a conversationalist, but doubtless, the art of talking might, to a great extent, have been cultivated. He was content to keep to what he "clearly and distinctly" knew, and not to theorise about what he did not know. If talking were an effort, writing was the same, and yet he carried on a large correspondence, besides writing numerous books. His fortnightly letters to Mersenne must themselves have taken some effort to accomplish, and the correspondence was most regular and assiduous on the part both of the good Father and of himself. But of ordinary letters of civility he wrote almost none. Still stranger is it to hear that he read but little, and that most of his library at his death consisted of presents from his friends. Reading, he considered, is like making a journey into a strange country which causes one to feel a stranger in one's own. It is quite clear, however, that what he did read was read to some purpose, for his statement, *e.g.*, of the arguments used by Harvey could hardly have been better. Indeed he probably professed more disparagement of books than was borne out by his actions—perhaps a fashion of his day. At least he allowed the value of good reading, and deprecated the perusal of promiscuous works which were mere contentions or simple collections of the thoughts of other men brought together in commentaries and abridgments. He strongly advised having recourse to original works, if one wishes to learn the truth. So much has been written of his style that it is difficult to speak of it with an unbiassed mind. There are those like Krantz, who certainly estimate Descartes' influence upon literature too highly.* Krantz calls him the

* *L'Esthétique de Descartes*, by Emile Krantz, 1898.

inspirer of the classical school of writing, both by the purity of his style and the method which he inculcated. There is no doubt that this method did acquire a place in literature that it had never had before, and that to Descartes this was in a measure due, since he brought into vogue the clear, reasoned mode of expression which characterised the so-called classical school. But how much this was directly attributable to Descartes' influence, and how much to the general trend of contemporary thought, it is difficult to say. We must remember that the old beliefs had become dead, and that the old forms had gone, giving place to that most engrossing study, the study of man as he is—man as an intelligent being taking an interest in all around him so far as it can be accurately discovered. This freedom of examination all round took the place of the old authoritative beliefs, and all things became simple and clear, and, therefore, demanded that simple and clear explanations should be given of them. The Truth was the great object of investigation, and the manner of searching for it had to be methodical and systematic. Descartes' system was just the bringing into operation the discipline necessary for the search. Exactitude of language was demanded; superfluities in expression had to be omitted with Descartes just as with Boileau. The classical method, no doubt, found its philosophical expression in the former, whether or not he actually inspired it to begin with. He taught, *i.e.*, the true value of discipline in his advocacy of authority, and that was a lesson which it was valuable to learn. The perfect simplicity of Descartes' expression is its great charm: it is only perhaps when writing to friends like Balzac, that one can detect the least affectation of "style": otherwise he says what he has to say clearly and directly, and above all absolutely naturally. Redundancy of words in the writings of others always disgusted him. What he most aimed at was that his ideas should unfold themselves automatically, in the language most suitable to them, and that thus truths should be demonstrated as from themselves. One of the

most notable results of this method is seen in the "Art of thinking" as taught in Port Royal, or in the new logic which there arose. Arnauld and Nicole acknowledged their debt. Cartesianism, as we well know, became a cult with women as with men, and Molière found in it an excellent subject for his satire. But "taste" at this time came into existence, and men learned to discriminate between what was right and true, and what was false. Descartes may not have been directly responsible for the new form taken by literature, any more than for the passionate religious fervour of Port Royalism, but he provided for both a philosophy which, to a great extent, met their needs.

One subject that always interested Descartes was that of spelling, which was not, of course, in those days, fixed and stereotyped as it later on became. Whatever his own usage might be, he considered that it would be eminently desirable to make spelling consist with pronunciation; and in his youth he suggested the idea of a universal language easily spoken or written. This project, which has so constantly reappeared in later days, was at that time being seriously discussed.

Descartes' life was much occupied with controversy, but the time was one in which men said what they thought without much restraint, and in doing this also, Descartes was not very different from the rest. For his friends he was all that was excellent and true: he had many of them — both many acquaintances, and also some loyal friends like Mersenne and Chanut, with whom he kept up a constant relationship, and who, on their part, were constant in their devotion. The capacity for inspiring devotion and love says much for the subject of it. There were enemies as well, but they were mainly those whose views Descartes thought it right to combat, and in this sort of enmity there need be no real ill-will or hatred.

Descartes' views on religion have been the subject of endless discussion, and his admirers have taken infinite pains in defending him from the charge of atheism—so great, indeed, have been their pains that the natural

inference was that the accusation had some justification. This, of course, was not the case. Descartes believed in God as the greatest and most certain of all truths—the source, indeed, of all others; and to him the fact of His existence is impressed on our minds as the certainty which can never be overturned. As to God's nature, however, he does not venture to dogmatise, for he believed that in questions such as these we must submit our intellect to His, since they are beyond our comprehension. This not altogether satisfactory position satisfied him, or if it did not satisfy him, it prevented the enemy from reviling. Religion was to be accepted as an existent fact: it was there, we must take it as it is, and endeavour very cautiously to explain it when we can. He could not honestly feel that such matters as he dealt with in his very guarded utterances on Transsubstantiation and the Eucharist, were perfectly clear and distinct as mathematical propositions ought to be, and yet he tried to explain them as best he could. The records of the Old Testament were beyond his understanding: in them he could see nothing self-evident or plain. But there was something in the traditions of his upbringing that he clung to as everyone born into the world does cling, wittingly or unwittingly, to the bonds of his inheritance. It was impossible even for him to apply the Cartesian method relentlessly, and clear himself of all prepossessions before building up his faith. Descartes is reported to have said that "his religion was that of his nurse; that he lived in it without scruple, and hoped to die in it with the same tranquillity." * And this last he did, so far as we may accept the apparently truthful record.

Whether Cartesianism was consistent with strict orthodoxy or not, we need hardly pause to ask. Descartes did not want to break with his traditions, and had he done so the consequences would have been very serious. In some things he was probably wanting in moral courage, as was shown in his extreme desire to stand well with those whose opinion he valued.

* Baillet, vol. ii., p. 515.

This may have caused him, even more than the quite genuine pains and penalties the church had the power to inflict, to modify the expression of his views. His influence for one thing would, in great measure, have been gone, had his orthodoxy been impeached. Such matters are delicate and personal, and it is not for us to form too absolute a judgment respecting them. There was, in any case, nothing sceptical about Descartes' mental constitution as there was, for example, about Pascal's. Pascal applied the Cartesian Method to his faith: he failed to justify the latter by means of reason, and yet he cast himself unreservedly upon it as his only refuge. Descartes, on the contrary, was always certain of, and satisfied with, his position: he had found the truth as he understood it, and no room was left for doubts or difficulties. He was merely concerned that the professing orthodox should recognise his orthodoxy, and he was always glad to find his opinions coinciding with those of St Thomas, or some other unimpeachable authority. Towards the close of his life it would seem, even allowing for the exaggeration of too zealous friends, that the religious form of expressing eternal truths became more congenial to him. He had talked with Mme. Chanut before her husband's arrival on such subjects, more especially when she confided to him her anxieties respecting the salvation of her eldest son.* But there were topics, such as that of the justice of eternal punishment, into the discussion of which he would not enter. For Calvinism he had a strong aversion, due, doubtless, to its association with his greatest enemies in controversy. The church that he clung to, was the church of his fathers. It is, however, a strange satire on Descartes' efforts to keep well with that church that his book should be placed upon its Index not so very long after his death.

* Baillet, vol. ii., p. 51.

CHAPTER XVI

DESCARTES' PHYSIOLOGY

BEFORE dealing with Descartes' teaching in Physiology, we should perhaps consider for a moment the point which physiological studies had reached at the time at which he wrote.* An important era had just been reached in the development of the science, and this development was mainly brought about through the work of William Harvey, the discoverer of the circulation of the blood, who was not twenty years Descartes' senior, and who, as the sixteenth century passed into the seventeenth, and while Descartes was still a child, had been pursuing at Padua the studies that were to have such momentous results. Anatomy was then the chief branch of study as regards the animal body; it had been initiated mainly by Vesalius, that famous anatomist who dared to look at the human body as it was, and not as it was supposed to be, and who appealed to no authority outside, but only to his actual observation and dissection. He, indeed, it was who founded the new anatomy, but it was left to Harvey to found that other important science, the science of Physiology. Harvey's great work was well put in his own words: "The very opposite of the opinions commonly received appears," he says, "to be true; inasmuch as it is generally believed that when the heart strikes the breast, and the pulse is felt without, the heart is dilated in its

* An interesting account of Physiology at this time is given in Foster's *History of Physiology, during the sixteenth, seventeenth, and eighteenth centuries.*

ventricle, and is filled with blood; but the contrary of this is the fact, and the heart, when it contracts (and the shock is given), is emptied. Whence the motion which is generally regarded as the diastole of the heart, is in truth its systole. And in like manner the intrinsic motion of the heart is not the diastole but the systole; neither is it in the diastole that the heart grows firm and tense, but in the systole, for then only, when tense, is it moved and made vigorous."* Thus the activity of the heart is not what sucks blood in, but what drives it out, and by the pressure of the constriction, squeezing blood into the arteries, pulsation throughout the body is caused. Harvey showed that the conclusion arrived at in respect of the lesser circulation was true likewise of the greater. His, indeed, was really the triumph of the experimental method: he studied the facts as they were revealed to him by anatomical investigation, and then experimented on the living animal without appealing to physical and chemical laws. Chemistry, as we must remember, was in its infancy still, but physics was rapidly becoming an important science owing to Galileo's immortal discoveries respecting the working of machines, and his investigations regarding heavenly bodies—all of which work was known to his contemporaries and himself by the name of mathematics. It may, indeed, be truly said that it was the work of Harvey and Galileo that prepared the way for the application of the Cartesian method in scientific work. In physiology, however, there came to pass a distinct cleavage in the point of view from which it was regarded. There was, on the one hand, the iatro-mathematical or iatro-physical school, and on the other the iatro-chemical. This last, as its name implied, looked at the same phenomena as were held to be explicable by physical means, as really chemical events.

Descartes, of course, favoured the former of the two sections, into which the science propounded by the unspeculative Harvey had been divided. Harvey had

* The works of William Harvey (printed for the Sydenham Society), p. 22.

been content to spend his time in observation, and then to draw his own conclusion. Descartes was not a real experimentalist in this sense. He did observe. We are constantly in his life told of his observation, his desire to be well supplied with specimens, his laboratory, and his vivisections. But his observation was not the observation of an unbiassed mind. Descartes always had before him the theory that he wished to verify, and one feels he would have taken no further interest in the science did he not think it might be made to serve as a means of making wholly comprehensible his theories of body, and its relationship to soul. Thus his main treatise on physiology (*De Homine* or *L'Homme*) is not to be estimated as giving any truthful or new conception of the body and its functions, but as being a statement of how the body *might* carry on its operations under laws entirely mechanical in their nature. Harvey's work did not really interest him as it would have done had he been more of an inquirer after truth, and less of a dogmatist at heart. He accepted Harvey's conclusions so far as they concerned the greater circulation and the passage of the blood from arteries to veins, but the other part of his discovery, the propulsion of the blood by the systole, instead of the diastole, he would have none of, because he did not understand the reason why the heart contracts; he was looking for a physical explanation of what Harvey assumed to be the truth from observation.

Descartes gives a correct and careful account of Harvey's doctrine that it is in the systole, when the heart grows firm and tense and smaller, that the blood is made to start forth, and that the pulse is felt to beat.* He, however, maintains that in the systole the heart is dilated or expanded from within: in fact, that the systole is really the diastole. In his view, even if Harvey had proved his point, he would have succeeded in explaining nothing, since he does not show us *why* the heart contracts and carries out its function. Descartes himself believes that a process of quick fermenta-

* *De la Formation du Fœtus*, p. 452 (Cousin's edition).

tion there takes place, such as might arise when yeast is added to sugar. There thus results to his mind that wonderful "fire without light" which is the moving force in all the body, and the motive force of all the passions.

Harvey had studied Descartes' teaching just as the latter had studied his, and in replying to objections to his theory he explains and criticises his opponent's views. He points out that when the heart becomes erect it certainly becomes less in size, and may be said to be in its systole, and that when it collapses, it is in a state of diastole and distension; then the ventricle becomes more capacious, filled as it is by the blood projected into it by the contraction of the auricle. "Nor do I find the efficient cause of the pulse aptly explained by this philosopher, when with Aristotle he assumes the cause of the systole to be the same as the diastole, viz., an effervescence of the blood due to a kind of ebullition. For the pulse is a succession of sudden strokes and quick percussions; but we know of no kind of fermentation or ebullition in which the matter rises and falls in the twinkling of an eye; the heaving is always gradual when the subsidence is notable."* Descartes would have made reply that he at least could produce a rational explanation of what Harvey stated, without giving adequate reasons; his explanation, indeed, was really essential to all the remainder of his system: the one could not exist without the other. Harvey, of course, never received from Descartes the credit he deserved; but this may have resulted from some small jealousy of one whose methods differed so greatly from his own.

In the *De Homine* the author describes to us how, in his view, body and soul are related. To him the former is a divinely constructed machine: just as a clock or artificial fountain is made by men, so is this human machine formed by the divine Artificer. Food is digested by means of certain liquors in the stomach, where it is also agitated and warmed: the subtle

* Harvey's Works, pp. 139, 140.

portion of the liquors passes into the liver where the blood is formed; it then passes on into the right cavity of the heart, which contains in the pores one of these fires without light, whose heat is so intense that, as the blood enters a cavity, it promptly expands and dilates. That is the sole function of the fire which is in the heart; it dilates, subtilises, and heats the blood, which drops by a tube or channel of the *vena cava* into the cavity on the right side, from which it passes into the lung, and from the vein of the lung into the cavity on its other side, from which it is distributed throughout the body. The tissue of the lung he describes as soft and delicate, and as constantly refreshed by the act of respiration, so that as the vapours of the blood enter from the right cavity of the heart, they are thickened and converted into blood, and then fall drop by drop into the left cavity of the heart in a condition in which they can serve to nourish the fire that there exists. Respiration is thus necessary to condense the vapours and also to conserve our life, excepting in the case of unborn infants (who are not able to breathe and have simply an arrangement of conduits), and lungless animals which have but one cavity or chamber in the heart, or else cavities undivided. The pulse, Descartes believed to depend on "eleven little membranes, which, like so many doors, shut and open the entrances of the four vessels which open upon the two cavities of the heart." * As one beat ceases and another is ready to commence, the little doors at the entrance to the arteries are, he tells us, exactly shut, and those at the entrance of the two veins are opened, so that two drops of blood must fall by these two veins, one into each cavity of the heart. The drops are rarified, and, dilating largely, they close the little doors at the entrance to the two veins, preventing more blood from getting to the heart, while they push open the doors of the arteries, into which they quickly enter, expanding the heart and all the arteries in the body thereby. Then the blood condenses, or penetrates the other parts, and thus the heart and

* *L'Homme* (Cousin's edition), p. 340.

arteries become no longer distended, and the little doors at the two entrances to the arteries close again while those at the entrance to the veins once more open, letting two other drops of blood pass, and the same thing happens again.* The uses of the blood are, of course, manifold; particles are used for digestive purposes in the stomach, brought there, always hot, in a moment by the arteries, and their vapours may mount up to the mouth, there forming saliva. But the most subtle portions of the blood always make their way to the brain, and there produce a certain very pure and subtle wind or flame which we call animal spirits. "For you must know," says Descartes, "that the arteries which bring them from the heart, after being divided into an infinitude of little branches, and having formed these delicate tissues which are extended like a network over the bottom of the cavities of the brain, reunite round a certain little "gland," situated towards the middle of the substance of this brain quite at the entrance of its ventricle, and have there a great number of little openings by which the more subtle particles of the blood which they contain may pass into this gland, but which are so narrow that they give no passage to those which are coarser."†

Descartes' view thus is that there is a certain innate heat in the heart (the old Galenic theory), and that this causes the blood to expand. Then the most rarified parts of the blood pass to the brain and form the "animal spirits," which receive the impression of outside objects and also of the soul. The pineal "gland" is that mysterious and much-speculated-about spot, the seat of sensation, imagination, and memory. The "spirits" flow from the brain by means of the nerves into the muscles, the consequent distension of which causes the movement of the limbs. The nerves are also made the organs of the external senses.

All this, of course, takes for granted that the human body is just as much a machine and as explicable by

* *L'Homme* (Cousin's edition), p. 341. † *Ibid.*, pp. 345-46.

the ordinary laws of physics as any complicated piece of mechanism. Descartes' account of that mechanism is evidently adapted to the purpose he had in view. He took what he knew to be the truth, and also what he surmised was likely to be the case but for which he really had no sufficient data, and formed the whole into a system which was (from the standpoint of the time) admirably clear and intelligible. He has always been regarded as interesting—from the physiological point of view—rather from the standpoint of the speculator than of the investigator; but in physiology, as in the other sciences, this side is not to be overlooked. We have here a very remarkable account from the philosophic side of how the human body *might* be and act. It is true it is not correct, and the body does not act in this manner, but it was surely better to have some clear theory, capable of definite verification, than to continue in the confusion of the theories of the day. Descartes' school—the iatro-mathematical school as it was called—did not become predominant in the physiology of the time; but in the middle of the nineteenth century there was a remarkable revival of it in a new form—that is to say in conjunction with the other, or iatro-chemical school; and the Vitalists have meanwhile been somewhat put aside. Descartes attacked his problem with a courage to be highly praised; he brought the human being, so to speak, into line with the rest of nature; many of his theories, such as those respecting animal spirits, were naturally found to be false, though much in favour at the time at which he wrote, and his explanation of the communication with the muscles is without foundation. He regarded the nerves as tubes along which the animal spirits flowed, and then he conceived a system of the human organism in which there was a brain as centre from which the animal spirits were transmitted all through the body. The nervous system carried on its operations in strict accordance with mechanical laws, and the movements of the body were also carried on in conformity with these. He gives us a general theory

of the connection between the outer skin, or sensory surface, and the brain, which was intelligible and apparently reasonable; it was when it appeared that nerves were *not* tubes, and that animal spirits could *not* be proved to exist, that men's confidence was shaken: still Descartes' view would have been, had such facts been pointed out, that if not this, then some other similar cause operating by similar methods, must have produced the given effects. His was, in sum, a working hypothesis such as was greatly needed at the time.

As regards the further details of the Nervous System, as set forth by Descartes, he points out that the soul has its seat in the pineal gland, but is not yet to be identified with it. The gland is a sort of "reservoir" from which the spirits flow into the ventricles of the brain, finally passing into the nerves. It is their passing from a motor nerve into a muscle that causes the form of the latter to alter. As certain tubes conveying water cause machines to move, so do the nerves of the human machine conveying spirits cause man to do the same. Descartes had been much impressed by the action of the royal fountains of the day in which there were quaint designs; the fact of the entrant's stepping forward, for instance, sometimes caused a bathing Diana to hide in rose-bushes. This, he thought, was a good example of the action of the man-machine. The sense of feeling is conveyed by certain delicate threads of marrow, carrying communication between skin and brain, which also have their place within the nerve tubes. The particular sort of sensation experienced is regulated by the particular portion of the brain from which they take their origin, and which is thus pulled open.

The soul from its position in the pineal gland can both effect movements and be impressed by external objects; the action of the latter through the nerves may be simply on the surface of the ventricles, or on the surface of the pineal gland itself. Action of the latter kind represents, of course, "ideas" of whose images the rational soul is conscious when it has any feeling. But

all psychical phenomena are explained, just as the physical phenomena are explained, by the same mechanical methods, and any other explanation would by Descartes be considered superfluous. The direct action of the soul alone is exempt from this law; it thinks, wishes, imagines, feels, acts upon the body.

It would take too long to deal with the different passages in which Descartes describes the mechanism of the various senses of smell, hearing, and vision. The account given of the last mentioned is specially interesting in the form in which it is described. There are, he says, two nerves, composed no doubt of many little sensitive threads which bring the brain into connection with the actions of the outer world; and then, when the soul is brought into relation with the "machine," it is enabled to bring before itself the various ideas of colour and light. The actual mechanism of the eye is described with the aid of diagrams, as is the method of determining distance; this last he explains by the example of a blind man using two sticks in his two hands, and bringing their points together upon an object. Though he may not know the length of the stick he does know the angle made by his hands, and this helps him to determine the distance. A similar end is attained in vision by focussing the two eyes on one point at a given angle.

Descartes concludes his treatise on Man by giving an interesting account of the meaning of sleep and dreams. The former takes place, he tells us, "when the actions of external objects are mostly prevented from passing to the brain and being felt, while the spirits in the brain cannot pass to the external members to move them." Sleep gives the substance of the brain, which is in repose, an opportunity of becoming re-nourished by the blood in the small bloodvessels which are present in its outer surface. In waking periods the substance of the brain is dried up and its pores enlarged by the continual action of the spirits.

To him this wonderful machine-man, with its various operations—digestion, circulation, growth, sleep, taste,

smell, vision—with its ideas, its memory and passions, this machine which is no more than a complicated clock, is one of the most interesting and delightful of studies. We can understand, however, how the conception led to a disregard of the feelings of the lower animals, which Descartes considered in the light of simple automata, responding to stimulation as a complicated machine might so respond. This view was acted on relentlessly by his successors, more especially at Port Royal, who regarded the cries of animals as of no account.

Descartes' other important physiological treatise, *De la Formation du Fœtus*, deals with the subject on very much the same lines as those adopted in the *De Homine*. The third section is concerned with the physiology of nutrition. Descartes' view is that it is the arterial blood that principally serves to nourish the bodily members, the pressure in the arteries being greatest and the arterial blood most subtle. The tissues, if alive, and capable of being nourished, are in his view developed as little streams of material originating from the blood, so that there is no other difference between the parts of the body which we call fluid, like the spirits, etc., and solids, like bones and flesh, but that the one moves more slowly than the other. The body is, so to speak, in a continual state of flux, but the rate of passage varies in the different portions, so that the parts in rubbing against one another may increase or decrease. With a child, when the movement is quick, for various reasons carefully explained, growth is the result, while causes of the same kind explain the phenomena of gaining and losing flesh, etc. In the fourth part of the work Descartes describes the formation of the animal, for nothing seems too difficult to be undertaken by his Method.* The origin and development of each organ is carefully explained, as is the reason for certain organs being double and the bloodvessels disposed as they are. To him, to know the beginning of things, and the laws that govern their action, is emphatically to know the

* Descartes also wrote a short treatise "Sur la génération des Animaux."

whole, since the rest is merely a question of the operation of physical law. The whole process is, indeed, described with astonishing minuteness; and at the time it seemed as though at last a real physico-chemical explanation of life and its manifestations had been found. Undoubtedly great progress has been made by following out the methods here laid down. People were tired of the old hypotheses, which they rightly enough saw covered ignorance by a multitude of words. A new era was opening in metaphysical speculation; men were beginning to have new conceptions respecting the universe and their relation to it. The world was now to be regarded as something of which they had definite and accurate knowledge in a way they never thought they had before: it was a *real* thing, which could be known as such, and all they had to do was to learn the "method" by which they could obtain their knowledge. Of course we cannot claim for Descartes that he was really the originator of the modern methods of investigation in physiology, whereby such enormous progress has been made. He was not sufficiently patient as an experimentalist to work out his results as other men have done. He belonged to the speculative school which, though it has its very useful part to play, is apt to look for clearness at the expense of stubborn facts, and it is in this sense that we cannot give him the credit which might otherwise have been his.

Still Descartes taught us much. He taught us that what we know is a world governed by physical laws, through which we know it. This being so, should not these laws be equally applied to every sphere of knowledge, and in this particular case, to physiology? The question which had no concern for Harvey pressed itself home upon Descartes, and it was from this point of view that Descartes described the beginnings of life with what knowledge he possessed. The notion of a body being composed of cells had not as yet been developed, else we could have conceived how the theory of crystallisation would have appealed to him. As it was he did his best, and at least succeeded in showing to

his contemporaries that this was the method in which the body might have been constituted from the beginning; and the very fact that it had been so represented signified a real advance, even if a temporary one. It was not long till (through opposition to this new point of view) Vitalism was to come into favour, even though it were but for a time. Every manifestation of life presents difficulties which it is impossible to say Descartes did much in solving. But he was—and this is no small thing—the originator of modern speculative views on physiology, and also, one may say, the originator of a new psychology. For he not only interpreted the physical phenomena of the body by his method, but the psychical phenomena as well. We could very easily change his account of the volatile liquid or "animal spirits" projected down the nerve tubules from the ventricles of the brain, causing the muscles to act at their bidding, into modern theories of the molecular changes which we now call nervous impulse; and the method of dealing with the phenomena is the same. Therefore, to René Descartes we owe a debt of gratitude, not so much for what he actually accomplished in scientific work, as for the fact that he opened up new methods of searching for the Truth, and helped us to have clearer visions of what that Truth might possibly mean.

CHAPTER XVII

DESCARTES' GEOMETRY *

THE History of Modern Mathematics may be said to date from the time of Descartes, for, by the invention of Co-ordinate Geometry, he prepared the way for the discoveries of Newton and Leibnitz, and laid the foundation of our present analytical methods.

It was no new idea to apply Algebra to the solution of Geometric problems, nor to define a curve by means of the relations between certain of its characteristic lines and certain constants. This had been done as early as the time of Archimedes and Apollonius. But it was Descartes who realised the meaning and use of this method. He saw that since any point in a plane is uniquely determined when its distances (generally called x and y) from two intersecting straight lines, the axes, are known, an equation involving x and y, that is of the form $F(xy)=o$, expresses a property which is true at every point of the curve; and *conversely* that if some outstanding property be taken to define the curve, it can be expressed by means of an x, y equation; and thus all its properties may be investigated by means of analysis alone. He also saw that when two or more curves are referred to the same axes, their points of intersection are given by the common solution of their equations.

Descartes' strictly Mathematical work consists of three treatises published in 1637—*The Dioptric, The*

* Montucla gives a good account of the Cartesian Geometry in the second volume of his History of Mathematics.

Meteors, and *The Geometry*—and a brief fragment on Mechanics published later, probably in 1668. Besides these there are frequent references to mathematical subjects in his letters—as well as particular answers to the numerous questions put to him by his friends. Indeed, to one correspondent—Père Mersenne—he writes: "Vous m'interrogez comme si je devois tout savoir." But it is to his *Geometry* that most of his fame as a Mathematician is due.

The *Geometry* is divided into three books. In the first book Descartes briefly explains his method. He says that every geometric problem may be reduced to a problem of straight lines; and he points out that, in order to find these lines, nothing more advanced is required than the five fundamental operations of Arithmetic, viz.:—Addition, Subtraction, Multiplication, Division, and Root Extraction. He advises:—

(1) That the problem should be imagined as done.

(2) That then lines, whether known or unknown, which appear necessary in its solution, should be named.

(3) And finally, that their relation to each other should be sought, and expressed by means of an equation or equations. Descartes strongly advocates this analytic treatment of Geometry as giving greater clearness and more continuity of argument, qualities lacking in the work of the Ancients, who probably did not understand where such reasoning would carry them, and whose isolated proofs were necessarily wanting in connection and generality.

In illustration of these points Descartes takes a problem attempted by Euclid and Apollonius, and partly guessed by Pappus, and applies his own methods to its solution.

The problem is:—

Given any number of straight lines A, B, C . . . K, A′B′C′ . . . K′ fixed in position, it is required to find the locus of a point, from which are drawn to each of these straight lines, other straight lines, fixed in direction—such that, if the segments intercepted between the point

and the lines A, B, C . . . K A′, B′, C′ . . . K′ be $\alpha, \beta, \gamma \ldots \kappa$, $\alpha', \beta', \gamma' \ldots \kappa'$ respectively, the product $\alpha\beta\gamma \ldots \kappa$ has a given ratio to the product $\alpha'\beta'\gamma' \ldots \kappa'$.

In the second book Descartes proves that when there are four given straight lines, the locus is a Conic Section, or curve of the "first *genre*," and when there are five straight lines, the locus is a curve of the "second *genre*." Since the method is perfectly general, it is applicable however many lines are given.

Descartes classifies all curves into two kinds—Geometric and Mechanical. If the curve be supposed to be generated by the intersection of two straight lines which constantly move parallel to two given directions, then if the rate parallel to one direction be commensurable with the rate parallel to the other, Descartes calls the curve Geometric; while if this ratio be non-commensurable, Descartes calls the curve Mechanical. Of these two kinds he deals only with Geometric curves, which he again classifies into "*genres.*" He calls curves of the first and second degree, first genre; those of the third and fourth degree, second genre; those of the fifth and sixth degree, third genre; and so on.

The next important piece of analysis to be noted is the method which Descartes gives for finding Normals and Tangents — a far-reaching method which can be applied to investigate the curve as regards its diameters, axes, centre, and curvature. Descartes calls attention to its importance, and speaks of it as "le problème le plus utile et le plus général non seulement que je sache, mais même que j'ai jamais désiré de savoir en Géométrie." *

Taking a curve, symmetric about an axis, and taking a point in the axis as centre of a circle, Descartes determines the point at which the circle will cut the curve in two coincident points, and also the radius of the circle. By means of the equations to the curve and the circle, and using the condition that the roots are equal, he is able to draw a tangent to the circle, which

* *Géométrie*, p. 358 (Cousin's edition).

obviously is the tangent to the given curve at the point of contact. In his correspondence he gives a second and similar method for Tangents and Normals.

The last part of the second book dealing with the "Ovals of Descartes" is taken up with methods of making lenses, but, though interesting theoretically, it is not of practical importance.

The third book is almost entirely algebraic, and deals chiefly with the nature of the roots of equations. In making some preliminary observations on equations Descartes recommends that all the terms should be taken to one side and equated to zero; and though he was not the first to suggest this, he was probably the first to realise the advantage gained. He points out that the number of roots of an equation is the same as its degree, and he also shows how to construct an equation when the roots are given, and conversely how to determine whether a given quantity is, or is not, a root. He explains how, by the signs, to determine the number of positive and negative roots of an equation—a Method still known as "Descartes' Rule of Signs." He shows how, without solving an equation:

(*a*) To change all the positive roots to negative, and all the negative to positive.

(*b*) To increase or decrease the value of the roots by a given quantity.

(*c*) To make all the roots positive.

(*d*) To multiply or divide all the roots by a given quantity.

(*e*) To eliminate the second term of an equation.

In this book he carefully discusses cubic equations, and shows how to reduce an equation of the fourth degree, and attempts the solution of equations of higher degrees. Throughout his proofs he uses negative roots.

It should be remembered that it was Descartes who systematised our Mathematical notation. He used the letters at the end of the alphabet as variables, and those at the beginning as constants, and he brought into general use our present system of indices. He also

introduced the method of indeterminate co-efficients for the solution of equations.

Descartes did not, as a rule, give detailed proofs, nor does it seem that he wished to be too explicit. He preferred to throw out general principles, leaving his readers to work out the application for themselves. Indeed he says, "Je n'ai pas entrepris à dire tout," and again, "Mon dessein n'est pas de faire un gros livre, et je tâche plûtot de comprendre beaucoup en peu de mots—j'espère que nos neveux me sauront gré non seulement des choses que j'ai ici expliquées, mais aussi de celles que j'ai omises volontairement afin de leur laisser le plaisir de les inventer." *

* *Géométrie*, p. 428.

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